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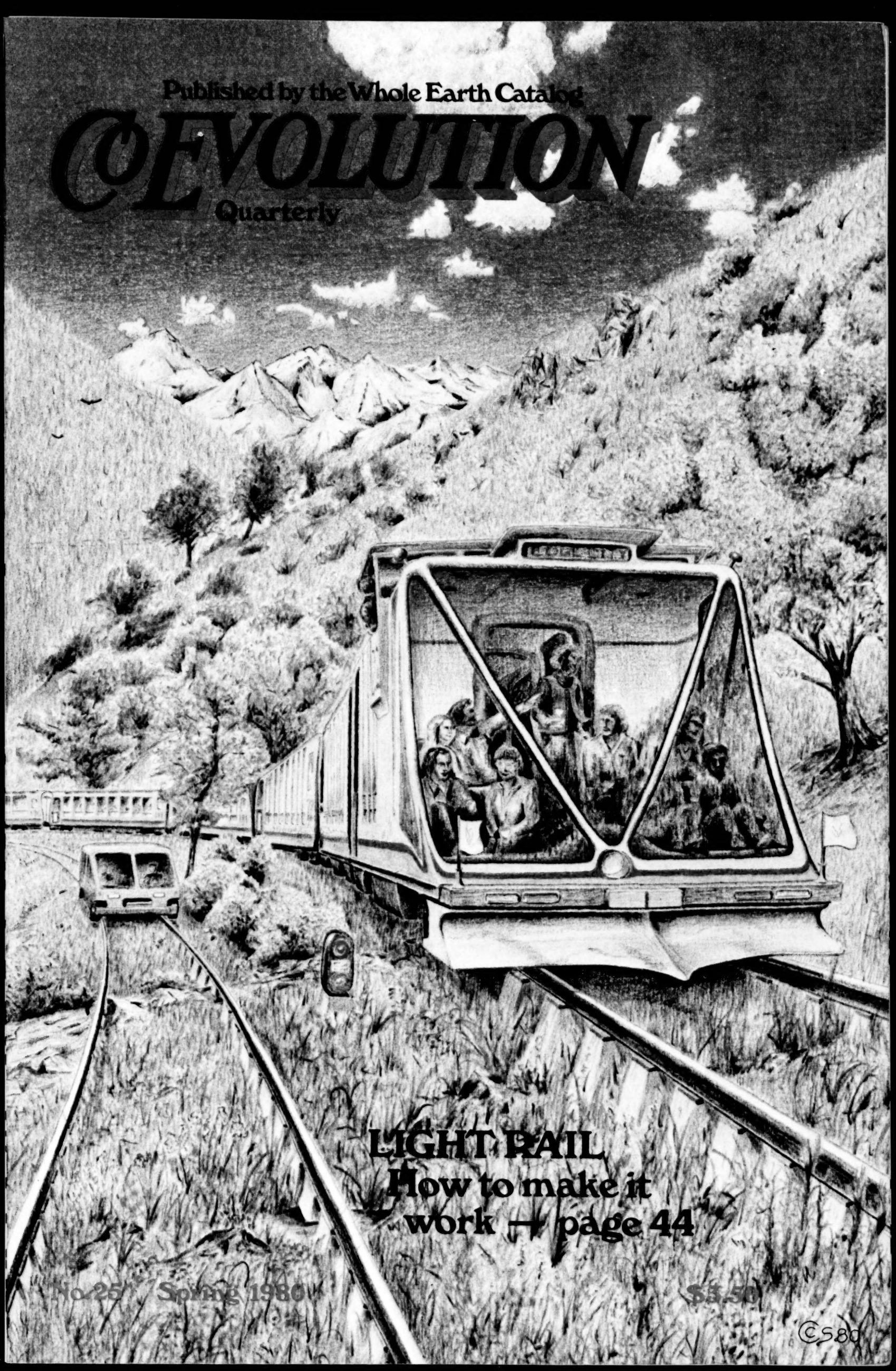
Quarterly



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No. 25 Spring 1980 $3.50

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The Battle

by Peter Blue Cloud

They were so angry that they decided to have a battle. So terrible was their anger that they would not wait, but declared that the fight must be fought now, immediately, on this very spot. Fox blamed what he considered to be the crime on Badger. Badger in turn was all for placing the blame on Cougar.

Jackrabbit hopped in agitation, calling for Mole and for Mouse, and for Deer and Bear to fetch their sharpest arrows and their heaviest warclubs.

By the time Coyote arrived the sides had already been chosen, the battle lines formed, and the smell of hate and future bloodshed permeated the very air.

He, Coyote, listened to all the threats and promises of broken bodies to be. He walked out and stood between the enemies, declaring very solemnly, and in a very soft voice:

"No, I cannot allow this great fight to happen just yet. There has been no battle-preparation dance. There has been no pipe of cleansing. No, the Creation does not wish this battle to take place just yet."

And some say it was Bear, but strangely, no one actually remembers just who it was. Bear denied the accusation, but someone ran from one of the lines and struck Coyote dead!

And Coyote fell and indeed lay there, very dead. And the cry for immediate battle was resumed, and the menacing cries for blood again filled the air,

when, from the opposite end of the battle lines, Coyote again stepped out, dancing and brandishing a huge club.

He ran to his dead self and struck a tremendous blow upon the body, then turned to face the creatures, shouting: "Who killed this person? Who struck him down before I did? Was that person purified? Did he sweat himself and think of the children? Did he dance to assure that the life cycle continue?"

"Enough talking!" someone shouted and ran to Coyote and struck him dead.

And again, much later, no one remembered who or what struck the blow which killed Coyote for the second time.

Then from the left hand side of center, Coyote ran out swinging a great club and struck at his fallen selves until all that remained were two masses of fur and blood and broken bones and twisted sinew.

Then Coyote danced the dance of victory over his own fallen selves, pledging their death to his own great anger. Oh, he danced, he really danced.

"Now then," said Porcupine, "how is it that this one who dances the victory in battle dance, when it was not himself who killed himselves? Is it within reason for him to claim this doubtful victory?"

"If I did not kill these two, then who did kill them?" demanded Coyote. "Let him step forward to claim these deaths, that I may kill him too in revenge."

When no one stepped forward, Coyote declared, motioning to his dead selves, "Then obviously, these kills are mine!"

"It seems to me," began Elk, who was interrupted by Skunk, who also began, "It's quite obvious to me that . . ." "Now hold on a moment," said Badger. And Coyote wheeled on Badger, shouting, "Hah! Don't you know that you can't hold onto a moment, let alone a minute?"

And so they argued, all the animal creatures, about the finer points of who might or might not claim a kill.

And the women of these great warriors, at the urging of Coyote, prepared a great feast, so that these mighty warrior-debators might continue on full stomachs.

And soon, the recent anger was set aside for the more important battle of words leading to reason.

And by this time, everyone having forgotten all about Coyote,

he, Coyote, took his fallen selves by their tails and dragged them away uphill.

Then he took a good hot sweat bath and then sang a song of renewal known only to himself, and soon his other selves revived. "Now," said one of them, "that's what I'd call making your point the hard way. You know, it really hurt when you killed me."

"Yes," said the other self, standing up and stretching, "the next time this happens, don't forget it'll be your turn to be killed."

"Hey, maybe this won't ever happen again, huh?"

"Oh, it will happen again." Coyote said, "Yes, it always seems to happen again."

Then he merged into himselves and walked away, far away. ▪

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Cover

The reason the flags on the train are blowing toward you is: that's the back of the train just now; when it comes back down from the Sierra, it will be the front (the driving units are in the middle of the train). Light rail fully explored offers that kind of flexibility. The vehicle on the left is a small railcar. See pp. 44 - 55.

We've never had the convenience before of a combination article researcher writer illustrator and cover artist. Christopher Swan did the color with prismacolor pencils and about ten days of carefulness. If you find the cover too soothing, turn to page 139, where R. Crumb's cover from last issue is being discussed.

Peter Blue Cloud, the author of "The Battle" is of the Turtle Clan, Mohawk Nation, Caughnawaga Reserve, Quebec. A new book of his coyote stories, **Back Then Tomorrow**, ***is available for $3.50 from Blackberry Press, Box 186, Brunswick, Main 04011. Blue Cloud and Swan both live near Nevada City, California.***

– Stewart Brand (SB)

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BETWEEN RUSSIA AND AMERICA, SOMETIME IN THE NEXT 30 YEARS, THE PARAMOUNT HUMAN ISSUE OF NUCLEAR WAR IS GOING TO FIND ITS SOLUTION OR DISSOLVE US TRYING.

OUR ENEMIES OUR SELVES

by Robert Fuller

A two-part interview – part before and part after the Soviet invasion of Afghanistan.

Fuller is at present a Senior Researcher at Worldwatch Institute in Washington, D.C. He was President of Oberlin College from 1970 to 1974. Partly because of that experience he spent October and November of 1978 speaking and travelling in the Soviet Union. The first part of this article took place in June, 1979, as a syndicated radio interview with Michael Toms for New Dimension (a cassette of the full interview costs $15.50 from New Dimensions, 267 States St., San Francisco, CA 94114).

In all of his efforts in recent years Fuller has an unhidden agenda – finding how to change the world's geopolitical habits away from war.
–SB

Michael Toms: Bob, you recently spent a few months traveling across Russia by train. Where'd you start?

Bob Fuller: We started in Berkeley, flew to Paris, and got on the train there. We rode – my wife, a child 1-½ years old, and I – from Paris up through Scandinavia and entered the Soviet Union in Leningrad, at the Finland Station, where Lenin entered. We continued by train to Moscow, flew a section of the country in the middle, and got back on the train at Lake Baikal and rode from there to the Pacific on the Trans-Siberian railroad.

Toms: How was the experience of Russia? What were some of the things that came out of it for you?

Fuller: It was the most arduous trip I've ever taken, and I've travelled a great deal. The Soviet Union is always very trying psychologically and physically. While on the Trans-Siberian railroad one of the main things to do is compare notes with other travelers, mainly Europeans of all nationalities. It was almost universally an experience of considerable difficulty, and yet a kind of a pioneering camaraderie emerges in the group of having endured the hardship, and so there's a continual exhilaration in the background of everything that buoys you up through this difficulty.

The difficulty is partly that you do feel you're under constant control. You're thrown back into that mentality of a second grader on a class trip where the teacher is always yelling at you to get back in line. The Intourist guides control your movement and check on your passports and shake you awake at 3 in the morning in Novosibirsk to make sure that you are who you're supposed to be and that you're not leaving the aircraft and that your papers are in order. There's a stern quality about it that's the opposite of Italy for example.

The countryside is stern too. Moscow is muddy and cold in November, and Siberia of course is cold, but clean and fresh. But the train is wonderful. I want to tell you that if you ever get a chance to ride that train you want to do it. It's a great big train. They have a wider railroad gauge than we do, and it feels larger. Everyone has a bunk. You're ensconced in this little room and it's cozy, and you just sit there and look out the window at a million million birch trees going by. You feel the ups and downs and change of the topography as you go all the way across Europe and Asia, and finally, there's the Pacific.

It used to be when people said they went around the world they actually went around the

world, on the surface of the world, and so they got some physical feeling that the thing was round and bumpy and so on.

Toms: How about the people that you came in touch with?

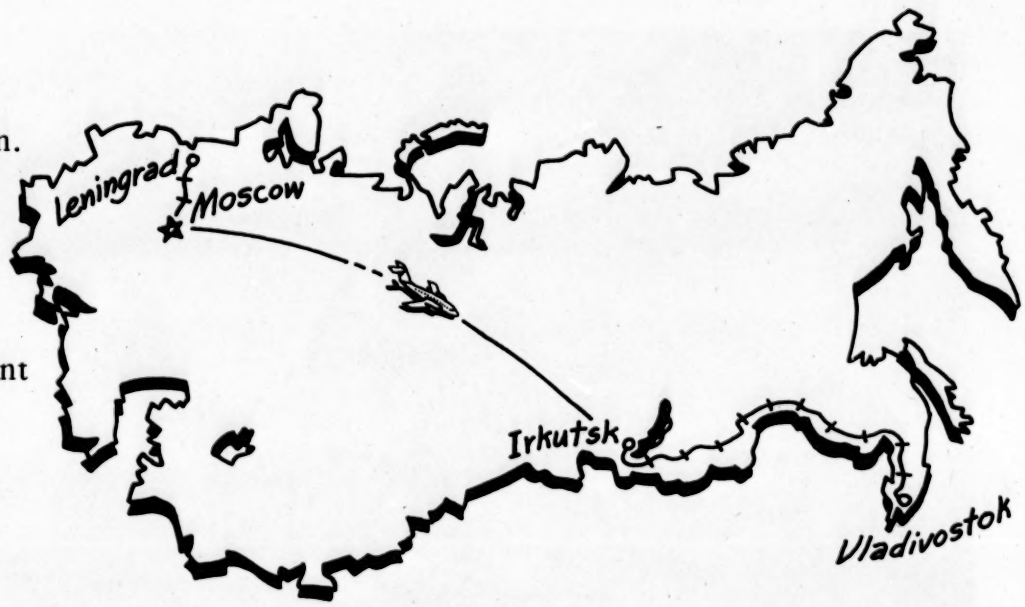
Fuller: Well, the main thing you come away with on a visit of just a month is disappointment over the lack of reciprocity and mutuality in your interactions with people.

Toms: You have to be guarded in your conversation?

Fuller: You feel you have to be guarded, partly to protect them, because they may be being listened to. You also are unable really to loosen them up very much. It's said that there's two kinds of Russians – daytime Russians and nighttime Russians.

The daytime Russians are guarded, and discussions with them are like negotiations. There is an extraordinary defensiveness that pervades their conversation. They assume that you are from a superior society, or at least that you think so, and that you don't recognize the good qualities of their society. So simple questions about their society are apt to produce sometimes preposterous replies. If you ask about mental health in the Soviet Union – I asked that – the reply from one person was that they have no mental illness in the Soviet Union; it's strictly a by-product of capitalism. That wouldn't be what most educated people there would say, but you can draw that kind of a response.

There's a real reluctance to get down and acknowledge the problems that confront their society. They're aware of the problems that we have, and I was very open in my talks about the problems that we have, but they're not able to respond in kind and address the ills of their society openly. So that's disappointing continually.



Fuller's travels in the USSR with his family.

The nighttime Russian, however is the fellow across the restaurant table who is drinking vodka and eating caviar and is very much like an Italian. I'm using that just loosely as a symbol of a person who's ready to be joyous and gay and fun-loving and singing and dancing and eating and drinking.

Toms: Is there any crossover between the two?

Fuller: Well, the same person can be a nighttime Russian and a daytime Russian. There *was* one moving crossover. I was there giving some talks on the state of American higher education in the last decade and some of the changes it had been through, and somehow the discussion worked its way around to the Second World War. I really shouldn't say "somehow," because all discussions with Russians work themselves around to the Second World War. It's reminiscent of discussions with Jews that sooner or later work themselves around to the Holocaust.

Until you've acknowledged the price Russia paid to win that war – their loss of over 20 million dead – until an American has acknowledged that, there's really no way you can discuss anything. At one point in my discussion I did acknowledge the fact that although Americans lost a soldier probably in every small town in this country, the Russians lost a soldier in every family, that their human loss was a hundred times ours, and that our principal contribution wasn't in blood but in materiel. The Russians are very moved to discover that someone knows that and is willing to say it. It brought tears to the eyes of my hosts right there in midday in a formal setting where we were all being professors.

They knew and were very pleased about the fact that showing in the United States on television this fall was a series called "The Unknown War," narrated by Burt Lancaster. They knew all about it. They had already seen it and were thrilled to think that Americans were finally finding out what Russia experienced during the war. They go on to say, "We Russians, having known war and suffered as grievously as we have, how can you imagine that we would ever ever be involved in precipitating another one? It's you that we're worried about. You haven't suffered."

Toms: What do you think?

Fuller: I think it is a real danger

"All discussions with Russians work around to the Second World War." The USSR lost over 20 million dead. This photograph of Russian refugees fleeing Nazi troops is from "The Unknown War" – a 20-part series narrated by Burt Lancaster that was televised nationally last year. According to a press release from the distributor, Air Time International, one American teenager commented, "The scene where the remnants of the orchestra were playing for the original audience, of which only a handful survived . . . when they showed all of the empty seats with the various instruments laid on them, I got to see the loss of life, not just hear someone read statistics."

that Americans haven't known the sufferings of war. I think the Russians in that sense have a much keener sense of what's at stake and what would be lost were there to be a war. That's a piece of wisdom that I'm glad exists on earth and I think they have more of that type wisdom than we do. That isn't the whole story though.

I have been using the word "Russian" loosely as referring to anyone in the Soviet Union. Actually that's a misuse. The Russians are a minority people in the Soviet Union, they're 47 percent or so, less than half. The other half consists of 20-odd different nationalities, different languages, different cultures, and different races. The Soviet Union itself is an empire, a colonial empire, with the feature that it's a geographically contiguous colonial empire. It's not like the British empire which was spread out all over the world, but it's no less an empire for being contiguous. There's a lot of force used to hold that thing together.

Toms: Did you talk about that?

Fuller: You couldn't really talk about that. You see, they view it as held together not by force, not by the old imperial method, but held together by their ideology. That's why the ideology of communism must reign supreme, that's the justification for holding the whole thing together. It's the economic emancipation of all those colonial peoples that justifies the empire.

Toms: And justifies the use of force without being blatant or stated as such. The end of economic equality justifies the military means?

Fuller: Precisely.

Toms: Did you find economic equality in the Soviet Union or did you find elite circles?

Fuller: There clearly are elite circles. There's a special lane in the highway for the use only of highest politicians. There're special stores where people with a certain kind of currency can buy special foods. It's not that they don't have privilege; they certainly do. On the other hand I have a sense that there is probably more economic equality in the Soviet Union than in the Western countries. It isn't entirely empty rhetoric at all that they talk about economic

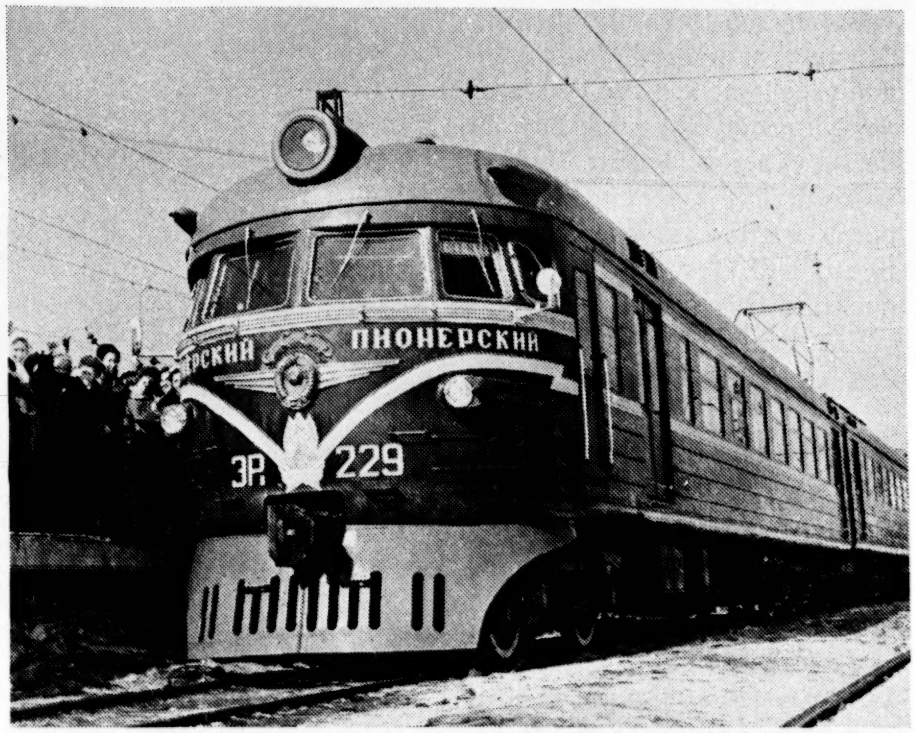
equality as a fundamental human right.

See, the human rights that they promote are really *substantive* rights – rights of education, medical care, food, shelter, housing – fundamental human needs, really. These are I think fairly well attended to in what is in fact a developing nation. The Soviet Union *is* a developing nation in almost all respects. Only in the military and perhaps scientific fields is it a developed nation.

Our rights are what might be called *process* rights as contrasted with substance rights. They are guarantees of due process – freedom of speech and assembly and religion. They guarantee a certain kind of approach, or permit many approaches. The Russians are big on the substance rights and weak on the process rights and we're the reverse. Viewing it that way introduces a little more symmetry into the situation.

One of the things I was really looking for there was a way of seeing what they're doing that didn't make them the bad guy, that wasn't chauvinistic, and that had more of a sense of symmetry and fairness. Where there's so much human effort there's got to be something seriously valid that's motivating these people to do what they're doing and to have suffered as much as they have to do it.

We watched television in the hotel rooms there, and we were appalled by the amount of lies on it. Either they were showing beautiful scenes of Soviet national parks (which of course were not lies) or they were reporting political speeches. Even if you couldn't understand the words you could tell they were lies because the way people were moving their heads was so phony, like oratory in third grade. Then I came back to this country and turned on my television set and I realized that the amount of lying was approximately equal, although the lying here is largely in the commercials. They have no commercials. So without even intending to find equality or some kind of symmetry in the television I was struck on my return with the fact that we weren't much better.



The broader-gauge Russian trains are also more comfortable. This electric locomotive allegedly was made from scrap metal collected by the schoolchildren of Moscow.

Toms: How would you say all this relates to nuclear war and its apparently increasing threat?

Fuller: That is partly the reason we wanted to go to the Soviet Union and experience it first hand. It's my feeling that it's fallen to our generation to deal with this question of nuclear weaponry. I was nine when the first atomic bomb was dropped. I'm sure anyone who was alive when the first bomb was exploded felt that sense going through their body and mind that this was a turning point for the world. And now 35 years later there are these enormous stockpiles of weapons that can end everything very quickly. A big war would be one in which nine out of ten people were killed whereas in the past very big wars only killed one out of ten people, as in Russia and Germany in the Second World War. When war kills even one out of ten the experience of nations is that it's unacceptable.

However if a war kills one out of a hundred, it seems to have been the case that it was viewed as a fairly good game to play. A lot of energy and patriotism, a lot of things for the women to do too, and just high enough odds of death to be exciting and make it more or less worth while – higher odds than auto racing, but not so high as to be prohibitive. With one out of ten I think there's a crossover. It really begins to be seriously questioned. Now suddenly the technology makes it nine out of ten that are going to die. It's very difficult to assimilate that fact. I can't believe we've begun to assimilate it because we continue to stockpile weapons which might make it 92 out of 100 instead of "only" 90 out of 100. There's an absurdity that's entered, that proves we haven't got any kind of rational or lucid grasp on the matter.

Partly I wanted to go to Russia

to see my "enemy." I put "enemy" in quotes because I don't really believe the Russians are our enemy any more than we ourselves are our enemy. I think we're all in it together. Just as our generation has been chosen to deal with this question of nuclear war or to die trying, so too America and Russia have been chosen as the national contexts where this problem is going to find its resolution or not. Sometime in the next 30 years, centered on America and Russia, this paramount human issue is going to find its solution or dissolve us trying.

We take a little teeny nibble at it when we have a SALT treaty come down the pike and wonder whether or not to ratify the thing. But it's just the tiniest little sniff of the problem. It hardly even has a bearing on the question, but at least it's practice in dealing with the issues. We get another tiny whiff of the question when we have a Three Mile Island kind of thing that raises consciousness a little bit as to what's at stake, but actually the danger of the nuclear reactors is minimal compared to the danger of the nuclear weapons. Everybody knows that, it's just that nobody knows how to get a handle on the question of the weaponry.

It used to be that if you had an enemy and he was strong, the best thing you could do to protect yourself against him was to try to be as strong. But somewhere in the last 20 years that age-old, tried-and-true philosophy has gone awry; it doesn't work any more. It doesn't make one safer to be as strong as someone who's already a hundred times stronger than they need to be or can use.

Gregory Bateson says America and other countries are addicted to nuclear weapons, that is to say there are institutional cycles within our society which cause

The daytime Russian and the nighttime Russian – the one defensive, the other dancing.

us to continue to create nuclear weapons even though we don't need them. That way of thinking about it is very nice because it doesn't blame anybody. It doesn't blame the government. It doesn't blame the armaments makers alone. It points out that there is a whole cycle of activity which reinforces itself all the way around that cycle, so that untying the Gordian knot is just that. It's going to be the untying of a knot. It's not going to be the labeling of someone or some group as evil.

We can't end the nuclear war if we're going to continue to try and do it in the old-fashioned way of making somebody take the blame for it. It's in every cell of our bodies and every cell of our society, and it's a question of a disentangling that is almost so hard to do that we'd rather have a war than try. When you really get down into the paralyzing complexity and difficulty of negotiating through even something as small as a SALT treaty, you probably figure, my God I'd just as soon have a war as do that again. That's how hard it's going to be. I'm talking this way just to make it real about what we're up against.

Toms: I think of something that Krishnamurti once said. He said that the problems of the world are so complex that they require simple solutions.

Fuller: I think that's right. I think the solution will be simple. It's like any solution in mathematics – the solution finally beheld has a simplicity, but to get to it you can't be simple-minded. To get to it you've got to be complex-minded. You've got to know everything there is to know about the thing, and you have to have tried everything and made every conceivable mistake, and then the simple solution may present itself to you. As it did with relativity theory and many instances of mathematical discovery.

You can't just go in there and put your arm around the guy and say, "C'mon, you know we don't want this, neither of us leaders do, and neither of our peoples do, so let's just liquidate the whole mess." For some reason it doesn't seem that you can do that. It's still not clear to me why you can't do that. But even in personal relationships you really seldom can do that. You usually have to negotiate your way out of a fight with your spouse, and gradually

lay down your figurative weapons, and finally put your arms around each other. You usually don't just leap across with love.

Toms: Is it holding on to being right? Is it having to be right and the other person be wrong?

Fuller: That's an early stage of it for sure, where we're concerned about being in the right and looking okay. And there's a stage of fear that the other guy may not be trustworthy, that if you acknowledge you were wrong, he may record that, so to speak, and then throw it back in your face three weeks later.

Toms: So really, the essence is trust. . . .

Fuller: You do build up trust through a six-year-long negotiation process. You learn just when and to what extent you can trust your opponent and you also are trying to preserve the aspect of the truth you bear. We do bear some deep truth in our society, and I believe the Russian society bears some deep truth too, and you have to make space for that other guy's truth to exist. He's not going to lay down his arms until he's sure you're going to tolerate the truth he's discovered on Earth through centuries of effort. The Russians want acknowledgment that the principle of substantive freedoms is in fact right in the world. My personal view is that it is right and that human needs are as important as our process-type rights. One possible way out of the impasse we're in, is for America to acknowledge that human needs must be guaranteed as well as human rights. We might join with the Soviet Union and/or China and guarantee a basic level of satisfaction of human needs on earth and make it our joint business that that level would be met. . . .

. . . instead, the USSR sent divisions of troops into Afghanistan to simplify its political behavior, setting off a blizzard of worldwide condemnation and economic retaliation. I phoned peace-maker Fuller for his thoughts.

SB: Bob, this is late January, 1980. The Soviet Union has invaded Afghanistan, Carter has stopped grain shipments and threatened a boycott of the Olympics, and there's talk of World War III and a general feistiness in the air. Does all this seriously date your remarks to Michael Toms last summer?

Fuller: I think that the Soviet Union, just like the United States has in it a great range of views on foreign affairs. Surely there is a camp that would like to take over Afghanistan and Pakistan and Iran and Saudi Arabia. And surely there is also a camp that entered Afghanistan with the greatest trepidation. I think the total context gave the upper hand to those who would extend the empire by force in December and January. But the fact that they got the upper hand and acted on it doesn't mean that they'll retain the upper hand indefinitely and proceed to enlarge the area they've taken by force.

I think that Afghanistan, even if subdued militarily, is going to prove to be a drain on what is already a weak Soviet economy – a significant drain. The main thing about the Soviet Union right now, to my mind, is that it's stumbling economically, it's faltering politically, its own people aren't attracted by its ideology, and no one outside of its borders is attracted by its ideology. It cannot even present itself as living up to socialist ideals. The invasion of Afghanistan reveals it to the Third World as imperialistic in substance, not merely in name.

I think all these facts are going to conspire to take the upper hand away from the group that's acting imperialistically and shift it over to those who'd be cautious. So I'm not alarmed that this is the first of a stack of dominoes.

SB: I have entertained an alternative scenario, partly from your piece, which depicts the Soviet Union as having a severe national inferiority complex. What you've just said suggests that that's a situation getting far worse. Could one imagine a situation where it gets so much worse that they're in such an unsane

Soviet TV has the same amount of lying as ours -- theirs by the state sponsor, ours by the commercial sponsors.

corner that they feel there's nothing to lose by further violent behavior because they see there's nothing to be gained by any other kind of behavior? It might appear to them that their situation has been growing steadily worse while they were making their improving attempts.

Fuller: Yes. The one viable instrumentality that country has is its military right now. And pushed into a psychological corner on the economic front and the ideological front and in a world popularity contest, they might become kind of like a lion that the lion-tamer has mistakenly cornered, and thrash out with brute force. That is the danger with Russia right now. A good question in this context is, should we boycott the Olympics? Does that further humiliation enrage the lion – the bear? I'm not suggesting that I don't think we should boycott the Olympics. I think it's awfully hard to go ahead essentially playing games in a context of invasion of countries. And since the Soviet citizenry is not party to world communications, this may be the only way that we have to communicate to them what their government is doing.

SB: I assume that the Soviet Union is not likely to pull out of Afghanistan, because that is to them an enormous loss of face. So they're there for the duration.

Fuller: Yes.

SB: What's your sense of the impact of our "economic sanctions" – cutting off the grain and so on?

Fuller: I think it'll have a definite effect. Already there's not that much meat in the Soviet Union, and this grain was to produce more meat. I think the Russian propaganda machine can use that almost to boost morale, in that old way that when you're really pressed by someone you can strengthen your inner resolve. Whether on balance it's a gain I don't know. It's also going to lead to more griping by Soviet citizens who are already fed up with being told they're a superpower and yet know that they're eating less well than a third of the world's peoples.

I just hate the whole trend of things which is moving away from interaction and away from partnership on all these fronts and towards confrontation and towards putting the sub-group of their government that favors this into a position of saying, "I told you so. We'll never be able to cooperate with those Americans. We better go it alone and tough it out."

Imagine a successful Soviet Olympics in the summer of 1980 and imagine the sense of national pride that could have created and then how that might have emboldened them to risk more contact. I keep seeing them as an immature boy who lacks the maturity and sense of power to deal with the world in a wholesome fashion.

SB: What do you do with an immature boy?

Fuller: He's got to have some successful adult experiences. And that's what I had hoped the

The Soviet empire. The twenty or so different nationalities are kept in one geographically contiguous Union of Soviet Socialist Republics by military force or by ideology, depending on your point of view. Afghanistan in 1980, like the Mongolian Republic, is not technically part of the USSR. Effectively, however, it is.

Olympics would be – a successful management experience on a global level where you're playing host to the world's nations and they tell you you were a good host and when they go away you feel you did something well. Now we're in a situation that's running just the opposite direction.

SB: Will Afghanistan be made part of the USSR?

Fuller: No, I think they'll leave it like Outer Mongolia, which is a separate sovereign nation in appearance and in the United Nations context but for all practical purposes is really run from the Soviet Union.

I think it's only over the longer run, over five years, that people will begin to wonder what real gain there was. Unless they do push on to get a warm-water port or control over the Iranian oil, there won't be much geopolitical leverage out of having conquered Afghanistan, and I don't think they're going to push on to the Persian Gulf. I don't see them being willing to undertake that kind of risk right now.

If they were sufficiently cornered, they might. And there are those who say that by the mid-'80s they are going to be sufficiently cornered – by serious economic problems in their own country. They can live on their own oil all right, but they need to export about 4 million barrels of oil a day in order to get foreign exchange. They mine 11-12 million barrels a day and have 3-4 million barrels to spare, but they need the foreign exchange even more than the oil. So they're going to be in a real jam quite soon apparently. That coupled with the general inefficiency of their economy and the bureaucracy and under-employment and lack of morale . . .

SB: That sounds like a scary entity to have that kind of military power. Scarier than us.

Fuller: Exactly.

SB: Do you have a sense at all of a Mideast conflict going inter-continental?

Fuller: If a Mideast conflict grew now, I think there would be great reluctance on both sides to let it go inter-continental.

SB: It could be nuclear without being inter-continental.

Fuller: I think it would stay local. It's my conviction that countries would not commit suicide over other people's turf. And the United States and the Soviet Union can exist without Middle Eastern oil. Japan may not be able to. Europe would sure suffer.

SB: I could see a balance point reached – assuming that everyone stays worried about public opinion. The Russians are down now because they're the military aggressor. The bad guy. I could see them out of despair or misplaced craftiness trying yet a further move, with, as is their style, a lot of military equipment and men. Which we would feel we had to counter, and not having the conventional weaponry at hand, we would hit them with tactical nuclear weapons. Then by being the first to use nukes, we would be bad guys, and the bad-guyness would balance out, we'd be back in cold war, and that would be that.

Fuller: That's a possible scenario. I don't think we would use nukes until it was a question of them taking over the whole Middle East and us coming away with nothing. And it could turn out that our conventional forces are adequate. I don't know how good they are. Anti-tank warfare may have developed to the point where electronics is the key to it all, and our stuff may be very good. One military policy guy I know was saying he felt the United States could hold southern Iran, where the oilfields are, if we had a few days' advance notice the Russians were coming.

SB: Is there any major shift coming within the Soviet Union? Either in terms of the increasing Asian component of their military, which they don't trust, or a political shift in the bureaucracy or in the multitudes of people? In Spain when Franco died everything changed. The same happened in China when Mao's generation died.

THE RUSSIANS ARE BIG ON SUBSTANCE RIGHTS AND WEAK ON PROCESS RIGHTS, AND WE'RE THE REVERSE.

Fuller: I don't think that kind of a shift is coming. The Asian minorities are now a majority, but 98% of the powerful positions are held by the western Russians, so it's a full generation before the minorities that constitute the Soviet empire would have enough seats at the highest levels of government to affect policy – 25 or 30 years. But it could go the way the rest of the world is going – as symbolized by the American Black power movement – a growing tolerance and even respect for cultural difference. The USSR even has European minorities – in Estonia, Latvia, and Lithuania – as well as Asian minorities of many different types and dozens of languages.

SB: What about the internal economic situation? Could that become enough of a bad trend where it would flip into something else. One hears of bits and pieces of free enterprise activities that work sort of well. If central planning continues to break down and they're in a non-enemy-produced corner and will try anything to keep the people fed – and they have this commitment to do so that you speak of – then could there be rather suddenly a Soviet form of free enterprise, not the disgusting capitalist kind at all, but the dialectic has taken a new turn, and they find a way to make it work without violating themselves?

Fuller: That's just how they would do it. In the context of socialism they would introduce a competitive and entrepreneurial fringe element, which they've done already in agriculture. They have local plots which produce a disproportionately large fraction of their vegetables and poultry. That could be extended to other areas of the economy.

I think that historically the United States and other traditionally capitalist economies are moving toward more central planning.

Both trends are going on at once in opposite directions, making the two economies look more like each other.

SB: As they look more like each other, does that help or hinder the possibilities of dialogue?

Fuller: I think it helps.

That's the long-range convergence that could produce some more harmony on Earth. Right at this particular juncture in history it sounds like pie-in-the-sky. I don't mean to downplay the seriousness of these times. On the other hand I don't want to get mired in them either and forget what the real long-run purpose is. It's in that spirit that I'm saying these things.

Maybe instead of our waiting cynically for the expected Soviet peace offensive, we should beat them to the punch and launch one of our own. Not a diminution of the economic sanctions at this point, but an enormous increase in communications on all levels – political, military, and cultural. What we need to avoid is ostracizing or quarantining Russia right now. That tends to lead toward exacerbating a situation rather than toward reconciliation and peace.

Because of our power, Americans have a greater responsibility than just to our national ego. The whole exercise here is to translate our national confrontation into planetary terms – into protecting and enhancing everyone's well-being. ■

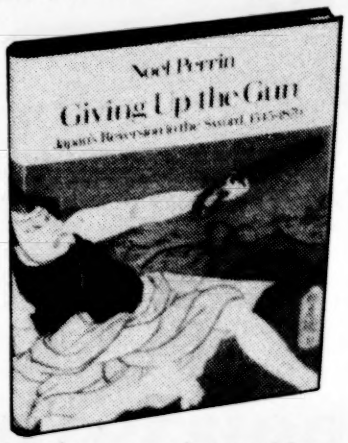
Giving Up the Gun

Our culture feels oddly helpless about its bad habits. Remember the population harangues of the '60s? — no one, pro or con, imagined that birth rates might actually decrease anything like the way they in fact have. Similarly the Arms Race is treated as a given, like Original Sin.

From 1543 to 1879 the highly sophisticated culture of Japan gave up the gun, and they didn't even have to (as we do). Read this short wholly fascinating book and take heart. —SB

Giving Up the Gun
(Japan's Reversion to the Sword, 1543-1879)
Noel Perrin
1979; 122 pp.
$8.95 postpaid from:

David R. Godine, Pub.
306 Dartmouth St.
Boston, MA 02116
or Whole Earth
Household Store



What the Japanese experience *does* prove is two things. First, that a no-growth economy is perfectly compatible with prosperous and civilized life. And second, that human beings are less the passive victims of their own knowledge and skills than most men in the West suppose.

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There never was any formal abolition of firearms in Japan. Instead, there was an extremely slow series of cutbacks, with no one point at which one might say: At this moment the Japanese gave up guns. . . .

The Tokugawa shoguns first began to assert control over arms production in 1607. They started by calling in the four senior gunsmiths at Nagahama and giving them their swords — thus, of course, promoting them to samurai — and by simultaneously issuing a set of orders governing the industry. One was that guns and powder were henceforth to be made only in Nagahama, which meant that the provincial gunmakers, one by one, were required to move there. Swordmakers and spearmakers, of course, could stay where they pleased. Another was that all orders for guns had to be cleared with Tokyo before they could be filled. A Commissioner of Guns was appointed to make sure these rules were followed. In short, starting in 1607, guns could be made only under license from the central government.

Such edicts are nothing exceptional. Many European rulers issued similar ones as firearms took hold, just as in our own day the government of every country in the world producing nuclear arms has proclaimed them a government monopoly. In France, for example, another contemporary of Ieyasu's, King Henry IV, signed such an edict in 1601. King Henry said that the right to make gunpowder belonged as exclusively to the government as did the right to coin money. . . .

In England, considerably earlier, Henry VIII had tried his hand at actual gun control. He started at the opposite end from Ieyasu — not by limiting production, but by limiting ownership. An Act of Parliament of April 25, 1523 forbade anyone with an income of less than a hundred pounds a year to possess firearms, on pain of confiscation and a fine of forty shillings. This meant that guns were lawful only for the upper gentry. . . .

But neither the French nor the English edicts were ever seriously enforced, because in neither country did enough people really dislike guns.

The Dangers of Nuclear War

American activists are in orderly transition from work on curbing just nuclear energy to the harder and far more momentous task of curbing nuclear weapons. Some of the resistance techniques will transfer and some won't. With nuclear energy what to stop and how to stop it was a relative known. With nuclear weapons what to stop is less well known, and how to stop it is an utter unknown.

Therefore instead of jumping to ideological conclusions a more effective path for the movement for now may be to raise questions and court ideas — encourage brainstorming on a world-wide scale. If all parties are welcomed to that discussion, a fair step toward resolution may already have been taken.

The critical ingredient is information. Political groups out of power fall into sectarian squabbling because their political life is restricted to theory and conflicting assertions. Parties in power are somewhat more convergent because the realities of daily responsibility force them to be; theory is secondary. The reason Dan Ellsberg is such a potent anti-nuclear spokesman is because he marshalls his facts as if he were still Establishment.

I don't know the best texts for a budding activist against nuclear weapons. (If someone does, write it up for **The Next Whole Earth Catalog** *and get it to us by mid-April.) I grabbed this one out of the river of books flowing by my desk. It's the papers from a Pugwash Symposium held in 1976 and 1977 (the 30th of that noble lineage). Damn near every page changes my mind somewhat, and I thought I had my mind made up on this subject. —SB*

The Dangers of Nuclear War
Franklyn Griffiths & John C. Polanyi, Eds.
1979; 197 pp.
$5.95 postpaid from:

University of Toronto Press
33 East Tupper St.
Buffalo, NY 14203
or Whole Earth
Household Store

Many millions who die in the aftermath of a massive nuclear exchange will die most horribly in a society that can no longer offer the comforts of warmth, shelter, food, uncontaminated water, and medication. The millions of injured who survive in a condition of reduced health (blinded, burnt, maimed, or weakened by the effects of radiation) will provide a fertile ground for plagues of contagious disease. Those fortunate enough to escape the war and its aftermath without visible scars will live in fear that their long-term health may have been impaired, their environment poisoned, and their future progeny imperilled for generations to come. The sense of demoralization, and its consequences for the orderly process of reconstruction, defy imagination. No parallels can be drawn (though sometimes they are) with the deaths and carnage of previous wars. The compression into a matter of hours of events more terrible than those that took place in other times over a period of years will shred the fabric of society rather than — as previously — severely strain it.

—John C. Polanyi

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In effect, acute super-power crisis is now and will doubtless remain a precondition for the occurrence of general war. To inquire into the likelihood of general war is therefore to consider the likelihood and character of super-power crises — the potential they present for miscalculation, for inadequate control of national strategic forces, and for mutual loss of control over escalation of the crisis itself. John Steinbruner's account of the vagrant strategic anti-submarine warfare operations of the U.S. Navy during the Cuban missile crisis of 1962 shows just how things might begin to go wrong. And this was at a time when political leaders sought to exercise intense political control over military forces far less complex and elaborate than exist today.

—Franklyn Griffiths

A STORY SO FAR UNREPORTED IN THE AMERICAN PRESS

Metrication Halts in Canada

by Stewart Brand

How did we get such a scoop? Distrust. Having learned to distrust even the most neutral of the metric literature* and disbelieving the common statement that "oh yeah, Canada's about 80% metric now — no problems," I spent some CQ money on a clip service to monitor metric in Canadian newspapers.

Different story. There's an anti-metric revolt in progress in Canada. It's a fascinating window on America's future if the government tries to push metric here.

The Canadian revolt went public in December, 1979, when a member of the cabinet, Small Business Minister Ron Huntington postponed indefinitely the January 1, 1980 mandatory deadline for 25% of Canada's food stores to go metric. The reason he gave was that public opposition was too great.

Where he learned that was from the food stores in three cities — Kamloops (British Columbia), Sherbrooke (Quebec), and Peterborough (Ontario) — which were ordered to switch to metric in July, 1979, as pilot cities for the national conversion. Huntington reported the result: **"The small store owners were losing 20 to 25 percent of their business because consumers were going outside the three pilot areas to purchase their goods. We found we were facing an absolute disaster in terms of consumer and retail resistance. This is a democracy after all. There is not even a Metric Act. There was no debate in the House of Commons. We have no right to force people."** (Toronto *Star*.) **"Why should Canada change when 140 countries still deal in Imperial measures and when up to 75% of Canada's trade is with the United States, which says it is still at least nine years away from metric?"** (Winnipeg *Free Press*.) Huntington also pointed out that Canada's metric system — the Systeme Internationale, called S.I. — is shared with only three other nations — Australia, New Zealand, and Singapore — 5% of the world's population. (Ottawa *Citizen.*)

The action produced a flood of editorials, columns, and letters-to-the-editor (which I'll report in a moment) as well as other rapid news developments. In early January Agriculture Minister John Wise announced that the scheduled metrication of the livestock sector was being postponed. In response Charles Gracey, general manager of the Canadian Cattleman's Association, declared that these moves were more than a delay. **"I would almost say it's permanent. The government pulled the rug out from under the program. Industry won't initiate and likely won't cooperate with any metric plans in the future."** (Toronto *Star*.)

Meanwhile what about the pilot cities that had already gone metric? Toronto *Globe & Mail*, January 16, 1980: **"The metric conversion experiment behind the meat and vegetable counters in three pilot cities in Canada appears to be on its deathbed. Many foodstores in Peterborough,**

*The September 21, 1979, **Metric Reporter**, biweekly of the American National Metric Council, reports that in the pilot metric cities of Canada "The changeover was completed successfully within a month due to effective advance planning and employee training. The general consumer attitude in the stores was resigned acceptance." [Ha.] The California Metric Conversion Council, on which I serve, began its 1979 report to the legislature with this dilly: "The United States remains the only major industrial nation not fully committed to the metric system of measurement."

Livestock metrics delayed

Metric mess sets us back $15 million

Metrication expensive, troublesome

Metric madness on hold

Metric scales to cost millions

Kilo kaput

'Canadian people do not want the metric system'

Dominion dumps metric goes back to old measur

Policy review in limbo

Metric conversion hit by doubts

Ontario, are switching back to Imperial weights as fast as they can get a visit from the scale companies, who in turn are now wondering what to do with their inventories of metric conversion kits. In Sherbrooke, Quebec, a major supermarket chain is switching back, and in Kamloops, British Columbia, the third city ordered to switch to metric last year to pave the way for the rest of Canada, some grocery stores are planning to start converting scales as soon as they get official word from federal officials that they will be allowed to do so without prosecution."

In short order the papers reported that officialdom had decided that no one would be prosecuted for abandoning metric in the pilot cities (formerly, scales were sealed and $1,000 fines were threatened). Then the merchants complained that they were out considerable money. **"Cooper's Grocery Store has banned the kilogram and reverted to the pound, said manager Rick Laidlaw, who estimates the store spent about $30,000 on metric scales. . . . Huntington said he is considering reimbursing merchants who changed their scales to metric if they have not already used the cost as a tax deduction."** (Calgary *Albertan*.) A spokesman for Loblaw's Ltd. said his company had opposed the conversion to metric because **"it would cost the retail food industry an estimated $100 to $200 million merely to convert scales."** (Ottawa *Citizen*.)

At precisely this opportune moment the milk industry announced that its imminent conversion to metric containers would be accompanied by a price increase to the consumer. The dairy council press release argued that **"conversion poses 'tremendous' costs to processors, all of which they intend to pass along to the consumer. 'Since metric packages are smaller, processors will be required to purchase, fill, and deliver more unit packages to sell the same volume of milk.' "** (Ottawa *Citizen*.) That set off another wave of editorials, some condemning metrication, some condemning the milk industry for making metric look bad.

(The U.S. has a similar situation with our conversion of the liquor industry to metric. Prices went up 11 - 20%, while metric advocates writhed and complained privately. Their problem is that they're powerless to do anything about it. The U.S. Metric Board – and the state metric councils – are devoid of regulatory powers and apparently unwilling to publicize metric price increases, despite the fact that the legislation they were formed by requires them to.)

The two forces defeating metric in Canada are the market, as demonstrated in the pilot cities, and democracy. Trudeau's Liberal government was ousted last May 22. The common view is that one of the major reasons was a strong anti-metric vote, especially in the western provinces. Joe Clark's Conservative government slowed down metric activities but then got in trouble by trying to reduce the massive government subsidy for oil (in U.S. terms gas costs about 77 cents a gallon in Canada). A no-confidence vote on that issue led to new elections on February 18 (editorials noted that while gasoline is sold by the liter, it was debated by the gallon in Parliament).

Ottawa *Citizen*, January 15, 1980: **"If the Conservatives form the government after Feb. 18, they are expected to strip the Metric Commission of its power and insist that any further changes to metric are approved by act of Parliament, a senior Conservative government advisor said Monday. A spokesman for Liberal party national campaign**

headquarters said the Liberals were still committed to metric conversion. But he said the Liberals had no objection to the indefinite delay in converting the retail food industry."

Daily Commercial News & Construction Record, January 24, 1980: **"Even if the Liberals win, there are likely to be delays in giving the program the new political push it will require, not to mention re-establishing timetables. This could be particularly true in a minority-government situation, where the ruling party is careful not to do anything that might help precipitate its downfall and antagonize voters. A Gallup poll conducted in early October found 52 per cent of Canadians were opposed to the metric system, while 44 per cent were in favor and four per cent had no opinions."**

(Less than 25% of Americans approve of metric conversion. In that light it is somewhat astounding that President Carter began this election year with a letter to the U.S. Metric Board expressing his strong support for converting America to metric.)

The Canadian vote, taken as I'm writing this, came out a victory for the Liberals, and a majority at that. How that affects metric policy, and what Canadians do with the policy, won't be clear for several months and will be worth watching.

Canada has been trying to go metric for seven years. When the revolt surfaced this winter, some interesting commentary came with it. Here are samples from just December and January.

"After several years of Celsius temperatures, it is now clear that the experiment is in the same flaw-prone class as Dr. Frankenstein's attempt to synthesize a nice person. . . . Despite the absence of reason other than obliging the international cartels that benefit from standardized measures robbing us blind, Canadians displayed our customary compliance — the word 'wimp' trembles on the tongue — in being pushed around by insensate bureaucracy. But the hour has struck for revolt. We are emboldened by the example of the Americans, who have done nothing whatever to metrify themselves. . . . There is poetry in the avoirdupois pound. Almost as much as in the dram. If some accountant for Exxon has to spend a few extra minutes changing that meaning into metric — tough tote. We don't want a world where only oil is refined." (Eric Nicol, *Vancouver Province.*)

"There are SI metric and CGS metric and about 10 others in Europe alone, said the magazine Harrowsmith in an article this year. 'A metric one-centimetre bolt from a Toyota,' the magazine continued, 'will not thread with a metric one-centimetre nut from a Volkswagen.' " (Calgary *Herald.*)

In many papers particular bitterness was expressed about "hypermetric" — converting from familiar metric terms to exotic S.I. ones. Instead of calories in food Canadians were being asked to keep track of their kilojoules per 100 grams (a joule is one newton-metre — a newton being the force required to accelerate a mass of one kilogram at a rate of one metre per second per second). Barometric pressure, instead of in millimeters of mercury, would be given in kilopascals. And windchill, with no reference to temperature at all, would be reported in watts per square meter. **"Once again the gnomes of Ottawa who run the metric program have produced a solution where there is no problem."** (Brantford *Expositor.*)

An eloquent expression of the power of familiarity turned up in a letter to the Winnipeg *Tribune* ombudsman: **"My body knew what 10 inches of new fallen snow was like to walk through. When my ears heard that the temperature was 60 above, my body instinctively knew what it meant. My face learned to distinguish winds that blew at 15 m.p.h. and at 22 m.p.h. and at 40 m.p.h., and my**

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Consumers cited in collapse of metric test

Kilojoules, anyone?

will cost you more Halt to metrification a welcome mov

Metric Plans Scrapped

Metrification experiment fails

SUPERMARKETS BUCK IDEA
Opposition Grows To Metric Change

Metric is a mess!

Metric is a 'nonsensical fad,' man compl

body had prior knowledge of how it must function in winds that gusted between 70 and 80 m.p.h. Today, I will have no part of metric. My intelligence tells me that it is more than a simple matter of learning conversion tables. It is a matter of rewiring my whole being, and throwing away 42 years of hard-won, first-hand experience and knowledge."

"Canada is fast becoming a foreign country; I suppose next we will be paying for our litres of petrol in francs. But I wish to remain a Canadian – where do I have to go, to the States?" (Prince George *Citizen.*) **"George Orwell argued more than 30 years ago that metrication was not worth the cultural dislocation it entailed."** (London *Evening Free Press.*)

Two organizations are fighting metric in Canada: 1) Anti-Metric Canada, 190 5th Ave., Ottawa, Ontario K1S 2M9; 2) Operation HUMBUG, 2460-A Marine Drive, West Vancouver, British Columbia V7V 1L1.

The Canadian construction industry is "a real schemozzle," according to its metric committee. **"Ready-mix concrete can be ordered, and delivered, in cubic yards or meters; concrete blocks and other masonry units and products are available in metric; forest products, lumber, plywood, etc., are in imperial measurements (except sanded plywood and panelling, which is metric in thickness); drywall is available in both metric and imperial; shingles and roofing materials are in metric; etc."** (Orangeville *Citizen*.) A new house, therefore, will have a metric foundation, imperial floor, metric walls, imperial roof, and metric roof sheathing.

This is the dread "dual system" that the American GAO Report warned us about: "A dual system – usage about equally divided (ranging from 40 to 60 percent) between the two systems – would be inefficient, uneconomical, and confusing to everyone, especially the general public. Educators ordinances, and codes would be a confusing tangle using both systems." No one – metric, anti-metric, or indifferent – wants a dual system.

By its own account Canada is now about 40% converted to metric. England stopped at 50% and appears to be reverting gradually to customary. **"Britain has frozen its metric conversion halfway between tea and coffee: tea is metric and coffee imperial."** (Toronto *Star.*) Only three English-speaking countries have gone all the way – South Africa, Australia, and New Zealand – each time with mandatory laws over various degrees of resistance.

New Zealand is the metricators' model country. Conversion there went so smoothly, they say, that the Metric Advisory Board is going out of business, having completed its ten year task. Temperature is reported in Celsius, though some newspapers still give Fahrenheit. Roads are marked and enforced in kilometers. **"Yet shorter metric distances still cause confusion. Papers publishing reports that a wanted criminal was 176 centimetres tall met with total incomprehension, so many have reverted to using feet and inches, with centimeters in brackets. And rainfall in millimetres still has little meaning for most people. Readings are usually quoted in fractions of an inch. No one quite knows what to do about area measurements. Official statistics now are always in hectares. But ask people the size of the land on which their house is built and the answer will always be in terms of an acre."** (Kitchener Waterloo *Record,* dateline Auckland, New Zealand.)

In theory the purpose of metric conversion is to simplify and make uniform and less confusing a nation's measuring system.

In practice it does the precise opposite. ■

Pig Ignorant: About the Eighteenth Century

by Peter Laurie

ONE OF THE PLEASures of the ignorant writer is to dissect and divide, to praise and condemn the habits of his ancestors. The obscure and ill-informed hack, seated at his cheap typewriter, can command whole centuries in review, can make the masters of the world pass and repass before him, can find this one's policies well judged; that one's duncish. Well may Alexander, Caesar, Ghengis Khan and Napoleon tremble when they hear those keys begin to clack!

What more pleasant occupation could there be for a rainy morning on the uplands of Dorset, with the Aga burning bright and the breakfast eggs a-bubbling on the hotplate.

What brings this theme to mind is the cheering collapse of public morality here in Britain. As long as I can remember – and for a good while before – we have been oppressed with sea-green incorruptibles for politicians and civil servants. Our police were wonderful, our Prime Ministers grave and wise; our tax officials never overlooked a penny that was owed and never extorted one that was not. Bankers throughout the United Kingdom were models of probity and wisdom; doctors were *never* junkies, real estate agents never speculated in their clients' land; lawyers never made away with the funds entrusted to their care.

Of course, these things did, very, very occasionally happen, but it was clearly understood that the very fact that these scandals came to light showed how wonderfully vigilant the system was, even though there was no real need (because everyone was so wonderful) and that there was always a rotten apple in every barrel. Our wonderful police are very fond of the rotten apple theory, though the steady flow of scandal out of Scotland Yard suggests that it might be better phrased as 'there are sometimes a couple of good apples in every rotten barrel.'

(In my view, a more realistic theory of the police is that they are the biggest criminal gang, who get a subsidy from the state towards their wages. They are tolerated so long as they keep the other gangs down and don't steal too blatantly themselves.)

Anyway, the reason why all this honesty was so oppressive was that you knew in your water that it couldn't be true. The whole structure of middle class business assumes imbecility. You take a perfectly ordinary man, pay him ten thousand a year as a Bank Manager, put him in charge of a box with several million in it and expect him to go sixty years to his pension without pinching a penny. It's absurd. It's a miracle that *any* bank managers collect their pensions, let alone the majority of them. You take common or garden human weasels, make them Members of Parliament and eventually Ministers in charge of spending the half of our gross national product that passes through the hands of government nowadays, and are surprised when – oh, very, very very occasionally – they arrange things to benefit their remoter cousins. Slightly.

It wouldn't deceive a child, but it takes in most competent adults.

It could only work because for a hundred years odd we've had our critical faculties in these matters put on ice. Now the ice age is coming to an end. A man who might very easily have been Prime Minister was tried for attempted murder and acquitted against all the evidence. Officials of the Bank of England have been committing frauds worth an oil sheikh's ransom. Detectives at Scotland Yard are suspected of having hidden some billions of tablets of LSD. The better newspapers are full of stories of peculation and sexual depravity that make even my ears tingle. Brutal, cruel and unusual murders are perpetrated daily. Every self-respecting political party has a terrorist wing.

To my mind this is all very reassuring because what we see is what is really happening. You knew it was all going on anyway, but now the absurd and stilted scenery erected by the middle-class morality is collapsing. Whole sections have fallen down; in other places the wind has torn great rents in the canvas so the curious spectator can see amusing juxtapositions of the real beyond and the ideal before.

To take an example from your own splendidly simple system: I have always esteemed Nixon as a better President than Kennedy because he wore his nature on his face. It is quite clear that no

man who is both honest and intelligent can become President of America. He can be honest and stupid and put there by someone else; or he can be clever and crooked and get himself there. What was so ominous about Kennedy was his pretence that he could be President and clever and honest all at the same time. If he could deceive himself – as he seemed to – on so important an issue, what else might he not be mistaken about? You may think it none of our business, but here in Europe we do feel safer when the President of America seems to know what o'clock it is. It doesn't matter that one wouldn't want to buy a used car from him: we buy those from our own crooks.

So, matters are much simpler here than they used to be. What is happening is what you see happening. Those who preferred pretence find themselves without any clothes: they are left naked and ashamed by the whole brawling lecherous murdering thieving parade. In short, the eighteenth century has come back. I often think nowadays of some pear-faced old eighteenth century crook whose name I can't remember, on whose tombstone it says, 'Here lies so and so, who had the grace to procure for his children no less than 27 separate employments in church and state.' I would like to do the same.

By 'eighteenth century' I suppose I mean ordinary life. As far as one can see, the conditions of violence, self indulgence and greed that obtained then in public life have been characteristics of almost every age since humans first had the wit to live in towns and give their baser natures free rein. What is odd is that this simple and natural order of affairs is interrupted, from time to time, by absurd pretences of morality. We had a bad attack of it during the Civil War in Charles I's time, and again in the middle 1800s under Victoria, from which we are even now recovering. I don't know what caused the first outbreak, but the second is fairly easy to understand: it was due to India. Fate had put into our hands, in that country, 200 million very productive simpletons. Britain was a tiny island several thousand miles away: we could only rule India by a conjuring trick. The trick was that our otherwise negligible 50,000 soldiers and administrators were supermen. I know all about this because I went through the educational process that produced the supermen and I married a superchild that was trained on the spot, in the Indian army.

There were two main things to being a superperson: you did not feel pain or fatigue and you were scrupulously honest. If an Indian army child broke its leg when playing with its dusky friends, it would carry on until gangrene set in and then politely ask to be excused. When my wife was three and all the cantonment children had to have smallpox vaccinations, she went on playing with them until she dropped unconscious out of a high tree like a ripe fruit. Nothing less was expected. An Indian army child did not cry however much it hurt. It always told the truth, it did not explain and did not complain; and the impact of this extraordinary behaviour on the Indians who surrounded every moment of the white peoples' lives must have been much increased by the fact that even the babies displayed these extraordinarily masochistic attitudes.

However, what might simply be put down to masochism became quite startling when coupled with scrupulous honesty and a refusal to accept bribes. Of course, the British did not need to take a percentage now because they were taking everything slightly later on, but this was not always immediately apparent to the subject race. To take a cut of what passes through your hands is so natural a human characteristic that a refusal to must be evidence of very extraordinary qualities.

Odd or not, the trick worked very well for many decades, but with the unfortunate side effects that the unnatural attitudes it demanded spread throughout our whole social structure. You cannot be a superperson without doing great violence to your nature. In killing the baser part you kill great sources of vitality too, and this, it seems to me, is what has been wrong with our dismal little land for many a long year. We have been virtuous but only half alive. Now that people are starting to be bad again we might get some vigour too. ■

Violence in Pornography, or not?

The splendid Margo St. James, founder of Coyote, the first prostitutes' union, editorialized in the September, 1979 **NTFP News*** *against "the proliferation of pornography which incites the angry fantasies of men who have never received decent information about what sex is really all about."*

. . . Thus joining a considerable chorus in the women's movement – Women Against Pornography has held international conferences, demonstrated in Times Square, etc. In the December, 1979 **Inquiry**, *Nat Hentoff feared for the First Amendment (free speech) amid the tumult. He noted that "Susan Brownmiller, when asked by a reporter for the* **Boston Phoenix** *for statistics and case histories detailing this link between pornography and real-life rape – among other forms of assault – said, 'The statistics will come. We supply the ideology; it's for other people to come up with the statistics.'"*

Michael Phillips gave Margo St. James the $3,000 of **Whole Earth Catalog** *money with which she started Coyote – in retrospect one of POINT's best grants. Last November he wrote to Margo from Hong Kong, as follows. (The libertarian ballot proposition to eliminate the San Francisco vice squad, by the way, lost at the polls in January.)*

Dear Margo:

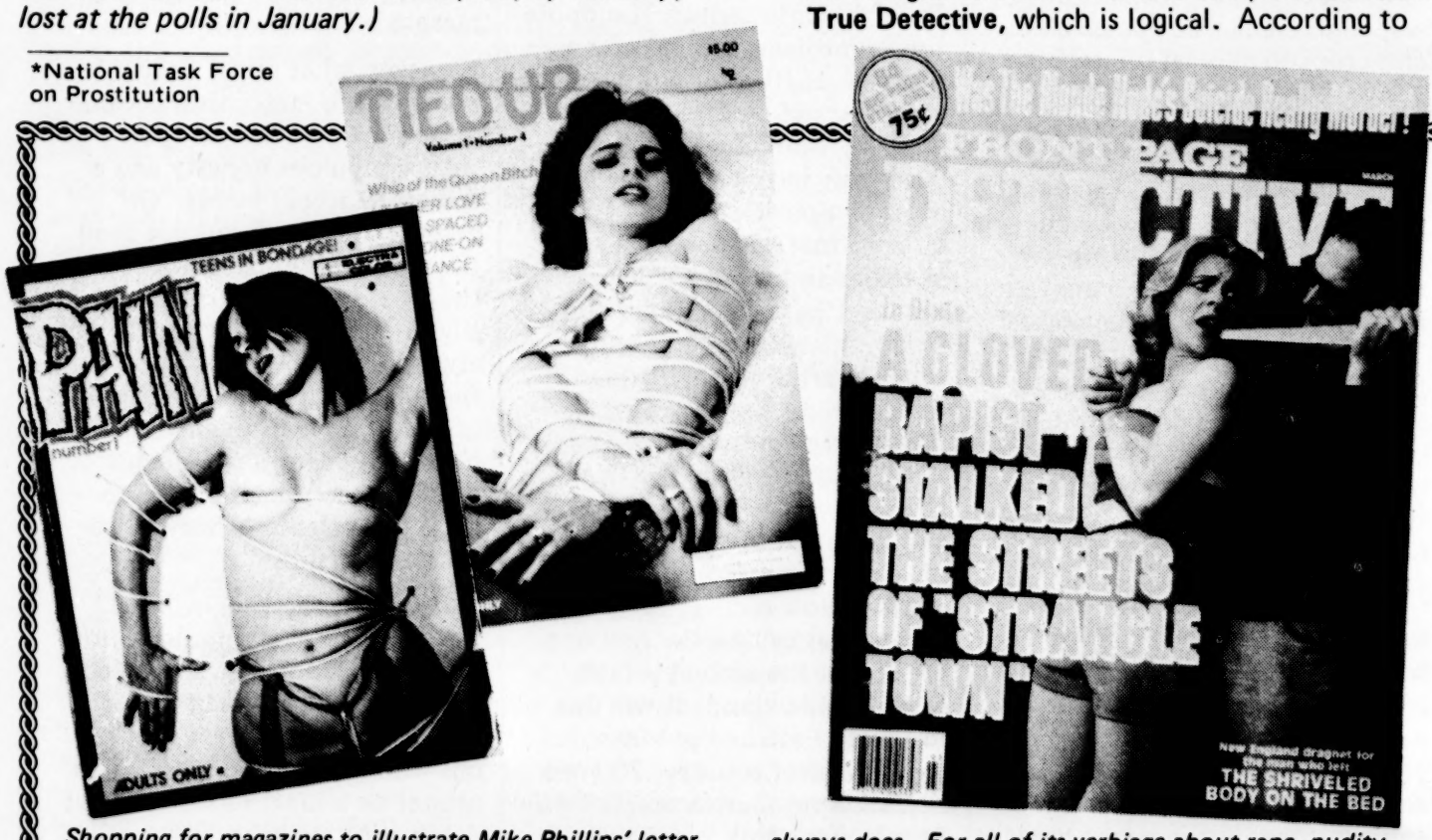
After our argument about Coyote's refusal to support a San Francisco ballot proposition that would eliminate the vice squad because you felt it would end regulation of violent porn, Carole and I began an extensive research project. I don't know the outcome of the S.F. election, but now know that your position is untenable.

At first we looked for violent porn out of curiosity. We didn't find any. So we looked in earnest. We carefully checked in and asked for violent porn in 3 stores in San Francisco, 3 in Seattle, 3 in London, Hamburg, Germany, Stockholm, Sweden, Plymouth, England, and Frankfurt, Germany. Nowhere, absolutely nowhere could we find even one photo, film, or video tape of anything resembling violence. We were surprised by many things we did find – the Venusian church in Seattle, **Lolita** Magazine in Stockholm, and Atomic Age (red & yellow rubber suits) in Frankfurt's giant sex shops. But no violence of any sort.

I'm defining violence as broadly as possible: mutilation, punching, choking, signs of blood of any sort, dead bodies, cutting the skin or any part of the human body, or residual evidence of any of those acts. I exclude bondage, whipping or spanking (which is very popular in England).

There is one exception to our findings. In some S.F. magazine stores that also sell porn we found **True Detective**, which is logical. According to

*National Task Force on Prostitution



Shopping for magazines to illustrate Mike Phillips' letter turned out to be an interesting exercise. Whereas the bondage and S/M (sado-masochism) material tends to overlap, the detective genre is quite distinct. The porn lives primarily in adult book stores, the detective stuff primarily on newsstands. Smoke shops often sell both, but the pornography is wrapped in transparent plastic so you can't look inside. Strong conventions are apparently hewn to. The pornography almost never shows threat with a weapon. The detective material almost always does. For all of its verbiage about rape, nudity, etc., the detective genre is quite prim photographically – no breasts, genitals, or even buttocks. These are on central display in the bondage and S/M magazines, but they too are relatively soft-core – nothing penetrates anything. There's also a significant price (class?) difference – the detective magazines are printed in shades of grey on the cheapest pulp and cost 75 cents; the bondage and S/M is largely color, printed on slick paper, and costs $3.50 - $7. The most important difference is in

the **Wall Street Journal** that genre has had a steady publication volume in the U.S.A. of 400,000 copies monthly since the 1930s, and no rapist or murderer has claimed to be a reader of them. That totals over a billion violent photos, assuming a conservative 8 per issue.

My question to you and any other women in "Women Against Violence in Pornography" is: "Why can't a determined couple with plenty of money and plenty of time to spend searching the U.S. and Europe find even one violent photo in a porn magazine?"

My question to Maggie, Jennifer and other sex researchers is: "How did such a large element in the feminist movement get this far on a complete fantasy?" If violence in porn doesn't exist, why does the belief in its existence have such a grasp on knowledgeable people (such as Margo St. J.)? Why has no one challenged this preposterousness in the media?

Enough on that subject directly. I haven't questioned the "W.A.V.P." position that seeing published material causes action. We have ceased looking for violent porn now that we are in Hong Kong. We may as well because it is everywhere in Japan in cartoons. Even in their equivalent of **TV Guide** you can find little cartoon figures of a penis and balls cut off by an angry woman where the penis proceeds to rape the woman everywhere, including her ear. The effect seems to be negative. More of these cartoons appear all the time while the rape, assault, and homicide rates have steadily fallen since the American occupation forces left Japan. With over 100 million people the Japanese have a total of fewer violent crimes than Fresno, California.

That's our report from around the world. I'm anxious to hear about the Hooker's Ball and find out if you've taken a well-deserved fall vacation.

Love,

Michael

Another relevant letter is this one from the Fall/Winter issue of **Open Road** *(Box 6135, Stn. G, Vancouver, B.C., Canada), responding apparently to opinions in a recent Women's Issue:*

Dear Friends,

A fucking prisoner hasn't got a chance! If it's not the guards it's some half-ass group or other who feel tough enough and safe enough to do some home-grown dictating of their own. So how many of these anti-pornites have spent 5½ years locked up and forced to visit over a phone and through glass? A blanket denunciation of porn is like a blanket denunciation of anything — it's ignorant.

And did you ever wonder why prisons fought against letting prisoners receive porn for so many years? You can bet it wasn't because of deep feelings of solidarity with feminists. *I need porn* and if the only one who'll sell it to me is Larry Flint, then right fucking on to him. How many feminists would consider taking over his role and send prisoners some flicks to help fight the vicious sexual repression of prison?

Women who were serious would consider fighting both their exploitation and ours with real sexuality, but until then don't expect to guilt trip prisoners about being horney.

In the Pink
Joe Remiro
Represa, CA

While I was in Spain around Christmas I ran into this item about terrorism in Italy in the December 24 International **Time**:

Calling themselves the Comrades Organized for Feminist Counterpower, a group of women firebombed cinemas and the offices of a lawyer who, they said, had defended alleged rapists. The militants claimed they were protesting rape and sexual exploitation. Two hard-core pornography theaters in Rome were attacked, and one was almost totally destroyed. The hitherto unknown organization distributed a communique denouncing the oppression of Italian women, declaring, "We have always used violence as an instrument for defense. Now we transform it into an instrument of attack."

Proving, I guess, that pornography does indeed lead to violence. —SB

The dismembered and savagely mutilated body of lovely Elizabeth Short was found sprawled in weeds of a vacant lot. — *from* **Master Detective** *(March 1980)*

tone: the bondage porn is pretend threat; the detective stuff is earnest.

As Phillips points out, bondage is quite popular — Alex Comfort praises it at some length in the constant best-seller, **The Joy of Sex.** *According to a recent TV documentary by San Francisco's education channel KQED, sado-masochism is mostly a heterosexual practice (the gays are more public but fewer) and about 80% of the straight men into S/M prefer to act out submissive rather than dominant roles.*

Personally I find the bondage and S/M magazines uninteresting (compared to cheerful hard-core, anyway) but inoffensive, whereas I'm appalled by the explicit deadly violence in the detective magazines. Maybe someone will write to us and explain how they're really okay and not to worry. —SB

It's no coincidence that the devisers of the Gaia Hypothesis are two of the least conventional and most interesting scientists working. Gaia is an unconventional hypothesis – that Earth's atmosphere is a highly sensitive regulating medium maintained by Earth's life, making the whole planet, in effect, one life. To conceive Gaia, James Lovelock and Lynn Margulis vaulted disciplinary barriers and dogmas with a gusto that turns out to be characteristic. Here are accounts of their work life (Margulis begins on p. 31).

James Lovelock holds innumerable patents, most notably for his electron capture detector gas chromatograph, which has revolutionized environmental analysis. Since 1974 he has been a member of the prestigious Royal Society. –SB

The Independent Practice of Science

by James Lovelock

THE ARTIST, the novelist and the composer of music all tend to lead solitary lives, often working from their own homes. While some of these creative individuals may work at an institution or a university department, the idea of an "Institute for Creative Art" or of a "National Centre for the Composition of Music," seems amusing if not absurd. Yet the very opposite is both expected and found with creative scientists. Scientists almost always work in university departments, government or private institutions. A solitary one is not only unusual, he may be suspect as mad or rejected as irresponsible. A few years back, a review published in *New Scientist* of a book concerned with Darwin's life commented that proof of his insanity was that he chose to bury himself in a country village rather than enjoy the intellectually stimulating environment of Cambridge. I believe this reviewer was wrong and that the solitary practice of science from a country village, or even from a remote house half a mile or more from the nearest other, is not only pleasant

*This article is reprinted from the 6 Sept. 79 **New Scientist**, who got it from a talk that Lovelock gave to the British Association for the Advancement of Science. The **New Scientist** piece was not illustrated; Lovelock kindly loaned us the family photos you see here. He also kindly got a maniacal subscription to **CQ** once. –SB*

Coombe Mill, where Lovelock lives and works on the Cornwall peninsula at the far southwestern tip of England.

but also productive. Moreover, such an environment may even be better suited for some scientists than is the noisy bustle and rough house of a university department or institution where it is often impossible to get any work done.

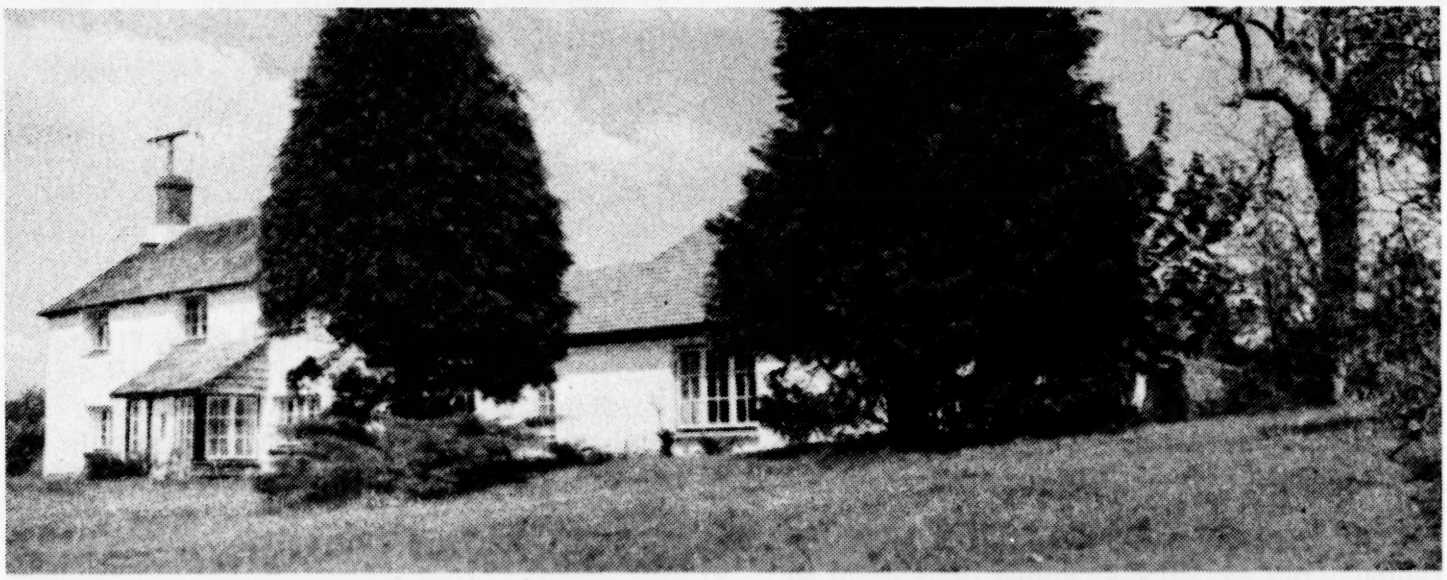
The independent practice of science does not happen by accident, and the events in my life which led me towards this unusual style of working need some explanation. I left school in Brixton in London early in 1938. The parting words of my headmaster were in those days wise but none the less unheeded. He said: "Lovelock, you are a fool to take up science. There is no place there except for those of genius or with private means." He well knew that I had neither of these nor any prospect of acquiring them. "You may think that life as a scientist is exciting," he went on, "but when you come to marry you'll regret your foolish decision for you will find that you have no money with which to support a family." His words were well meant and at the time very true, for in those post depression years, just before the Second World War, newly graduated chemists were employed for a year or more in some notorious industries at no salary on the excuse that they were acquiring industrial experience. But I was not only obstinate in my determination to do science of any sort, I was also incredibly lucky.

My first employer, Humphrey Desmond Murray, was a kindly and tolerant man and his business as a consultant chemist covered topics from the advanced organic chemistry of the synthesis of new developing agents in colour photography to the invention of invisible but detectable powders with which to mark bank notes for Scotland Yard. He provided what in those days was a princely wage, for an untrained laboratory assistant – £3 per week. He also paid my fees to attend that splendid institution, Birkbeck College, London, at which to attain a degree by evening class study. Most artists would think that there was nothing unusual in this way of life. It was that of apprenticeship, learning the profession at the hands of a master. But strangely, somehow, then and now apprenticeship is regarded as inferior to full time university training. And this is where I think that science at sometime in the past took a wrong turning.

In 1939, with the outbreak of the Second World War Birkbeck College was closed but I was able to complete my undergraduate training as a full time student at Manchester. University seemed very unreal after the rich experience of working life and I could hardly wait for the time to come when I could do rather than be taught at. And this is in no way meant to discredit the lecturers at Manchester for they were very good indeed. It was rather that there are some of us better able to teach ourselves heuristically, than to be taught. For us the years from puberty to the completion of university training are like a prison sentence. I feel for those now who have so many more years to serve than I did then.

Past governments arranged for custodial reasons, and to lessen the pressures on the labour market, to keep young people at schools and universities nearly until their 30s. In this otherwise sensible course of action it may be forgotten that this form of suspended animation denies the creative among the students the opportunity to exercise their talents.

My time at university ended in June 1941 and again I had the good fortune to find a job at the National Institute for Medical Research (NIMR) in London. In war-time the establishment had abandoned almost all of its long term aims in medical research and, like all other scientific institutions in the United Kingdom, was conscripted to serve in what was a battle of wits as well as of weapons. Every department was engaged upon one or more ad hoc problems whose solution was



expected immediately if not sooner. In those days concern about the security of scientific information was almost nonexistent and problems were openly discussed. I soon found myself participating in a bewildering range of subjects, such as the measurement of blood pressures under water, the spread of upper-respiratory infections among United States Bomber crews at a midlands airbase and the measurement of infrared radiation from flash and flame. It was a very elitist laboratory and the standards were set by the director, Sir Henry Dale, who was at the time president of the Royal Society. Under these unusual conditions of wartime, it was almost ideal as the training ground for a young inventor and for the kind of scientist I was to become.

My senior colleagues were always saying, "wait until the war is over and you can see what real science is like." When it did end, and the leisurely pace of normal research was re-established, I found it to be dull and unprincipled in its pursuit of personal recognition. But the NIMR was a very unusual laboratory and under its new director, Sir Charles Harington, set up an environment in which each and every talent could flourish. I spent the next 15 years from 1946 to 1961, there or at its out-stations browsing across all the scientific divisions without noticing whether there were any fences or not. I was able to work on subjects as diverse as the invention of acoustic or ionisation anemometers to the freezing in a viable state of cells, tissue or even whole animals. It should have been an environment satisfying for a lifetime, but as the years went by and the critical age of 40 approached I felt more and more that life was somehow passing me by. It took quite a white before I realised that the problem was tenure – not the lack of it, but the stifling certainty that short of criminal action, ill health or insanity, I had a totally secure job. Tramlines to the inevitability went on for 25 years to a pension and the grave.

The problem was how to leave so comfortable an establishment and, worse, how such a thought could be explained without giving offence. Once again fortune smiled in a form of a letter received in April 1961 from Dr. Abe Silverstein, then director of the National Aeronautical and Space Administration (NASA). The letter enclosed an invitation to be an experimenter on the first lunar Surveyor mission. It was well known at the NIMR that I regarded science as a way of life in which science fiction was reduced to practice. It was understood that such an opportunity to participate in space research in those early pioneering days could not be refused. So in September 1961 I left for Houston and the start of a new life. The United States was already familiar to us all for we had as a family spent two separate years there on fellowships, one at Harvard and one at Yale Medical Schools.

It is often forgotten that in the 1950s the standard of living and working of many scientists in the United Kingdom was much better than in the US. At Harvard our family, which then included three children, was expected to survive on $3000 a year as the income of a post doctoral fellow. In the laboratory itself, such was the shortage of funds that the breakage of even a test tube was a disaster. The United States is a strange country and I found that I was able, as a result of possessing a rare blood group, to sell my blood every few weeks at $50 a pint and so to keep the family in food. Science in America was transformed by the rivalry with Russia which started when the first Sputnik circled the Earth, and on our next visit to Yale in 1958 things were very much better. But it is important to understand that our departure for Houston in 1961 was in no way a move to greener scientific or personal pastures. It was a planned break and intended to provide some capital with which to start an independent practice – of course back in the UK.

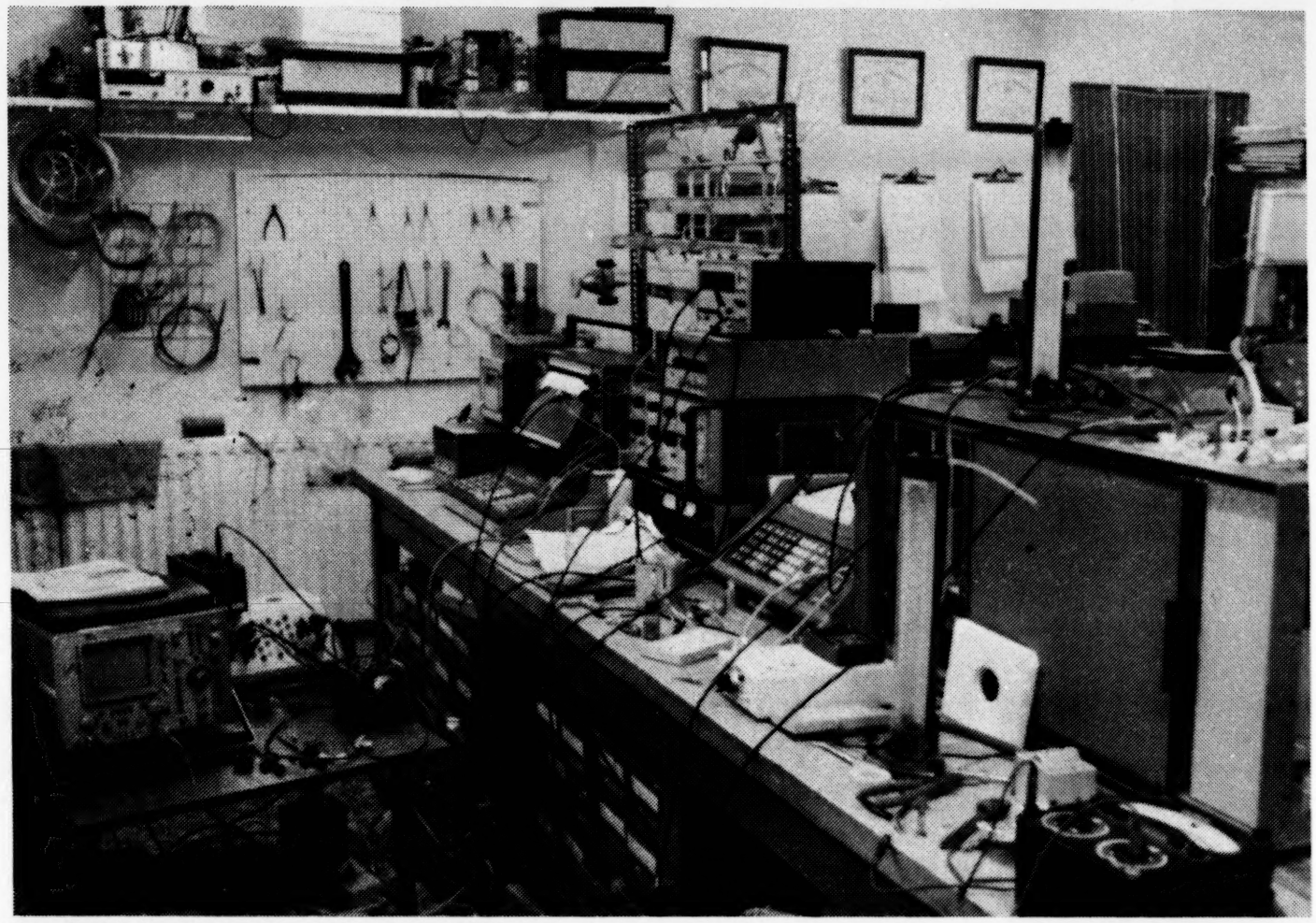
Space science was a fascinating experience. My

Lynn Margulis comments on James Lovelock

Jim's life is described here in the *New Scientist* reprint (September 6) very well, from the horse's mouth. He lives outside of a remote village. We watched meandering cows from out of his window. To travel there one passes hours of the bright red inspiring layered sandstone of Devon, "That's the Devonian, dear," he said to me and Zach when we got off the train and I asked.

I know Jim only because I kept asking planetary astronomers, geologists and others, "Why do all of you believe that oxygen in the atmosphere is a biological product yet you do not think the same of atmospheric nitrogen, ammonia, methane, nitrous oxide and all sorts of other gases that I know are products of the metabolism of microorganisms?" "Go ask Lovelock," they admonished, "He agrees with you." ("Agrees with me?" All I had done was ask a question.)

Anyway, at the advice of Sagan, Toby Owen, (Earth and Planetary Science Department of the State University of New York), H.D. Holland (Harvard, Geology), and Wasserburg (Cal Tech, Geology) I wrote Jim a simple letter and unlocked a stream of fascinating thoughts about "Gaia as seen from the atmosphere" that



Lovelock's home laboratory at Coombe Mill.

have fueled joint productivity until this day.

I loved reading the "Independent Practice of Science" article just as I love the new book *Gaia* and for the same reason: they are both pure Lovelockian and I love Jim. What amuses me however is the very suggestion he makes that anyone else has the wherewithal to invent patentable pieces of equipment, "to obtain small contracts to develop an idea in the face of competition from large organisations," to obtain a minicomputer, to sell one's rare type blood and to live in a country village that looks like a set out of Tom Jones! These cheery suggestions for the rest of us are pure Jim . . . none of us can pull any of this off . . . as much as we might like to, for example to get a consultancy from NASA 6000 miles away!

As far as intellectual achievement I believe that G. Evelyn Hutchinson first perceived that the Earth is a planet altered strongly by the presence of life. (His book for example, *The Biogeochemistry of Vertebrate Excretion*, was first published as a Bulletin of the American Museum Natural History in about 1955) . . . but it was Jim who has developed the framework for looking holistically and analyzing the surface of the Earth from the point of view of an information system of great complexity and subtlety; it was he who developed the analogy of the Earth's surface to the physiology of a single animal, if you wish. I also believe that perhaps the most important task you, Stewart, and I have (and perhaps also Gerry Soffen of the NASA Life Sciences Division) *is to keep Jim Lovelock happy and working.* It is enlightened self-interest after all and crucial for the continuation of our species and the integrity of our abode. □

Lovelock replies to skeptics

Since writing the article in the *New Scientist* I have been amazed to find that few believe that such a life was possible without the aid of private means and most are skeptical of my claim to have had no such support. In truth I have been fortunate enough to escape the handicap of any sort of inheritance, dowry or gift and so far have survived on what they seem willing to pay me for the work I do.

My instinct is to keep quiet about this part of my personal history. It has always seemed that the brash claims of the self-made man emphasize his selfish egomania. But I do feel strongly that it is important to challenge the base and dismal belief that nothing can be done without privilege and preference at the start. Quite to the contrary it's best to start at the bottom for then there is no way but up. □

job as a consultant to the Jet Propulsion Laboratory (JPL) at Pasadena, California, was to advise on hardware problems. My biological background also brought me into contact with those whose task it was then to plan experiments to detect life on the planets. Here I discovered an extraordinary dichotomy. Seen at first hand, the engineering an and physical sciences of the NASA institutions was often so competent as to achieve an exquisite beauty of its own. By contrast (with some very notable exceptions) the quality of the life sciences was primitive and steeped in ignorance. It was almost as if a group of the finest engineers were asked to design an automatic roving vehicle which could cross the Sahara Desert. When they had done this they were then required to design an automatic fishing rod and line to mount on the vehicle to catch the fish that swam among the sand dunes. These patient engineers were also expected to design their vehicle so as to withstand the temperatures needed to sterilise it, for otherwise the dunes might be infected with fish-destroying micro-organisms.

Such an account is no exaggeration of the attitudes and demands made by some of the space biologists. It explains why the experiments sent aboard the Viking Mission to Mars in 1976 returned so small and so equivocal a set of information. I hasten to add that, at last, since Viking, attitudes among space scientists have changed and are now appropriate to the great enterprise in which they are engaged. When I accepted Dr. Silberstein's offer to serve as a consultant to NASA I had two objectives in mind. First, to enjoy participation but secondly to acquire a source of funds with which ultimately to achieve total independence. I had been warned earlier that any kind of independent scientific practitioner needs several customers – otherwise he is merely exchanging one kind of employment for another. I had no illusions therefore that even were the space consultancy well paid (which it was not) a single sponsor would be enough – but it was a start.

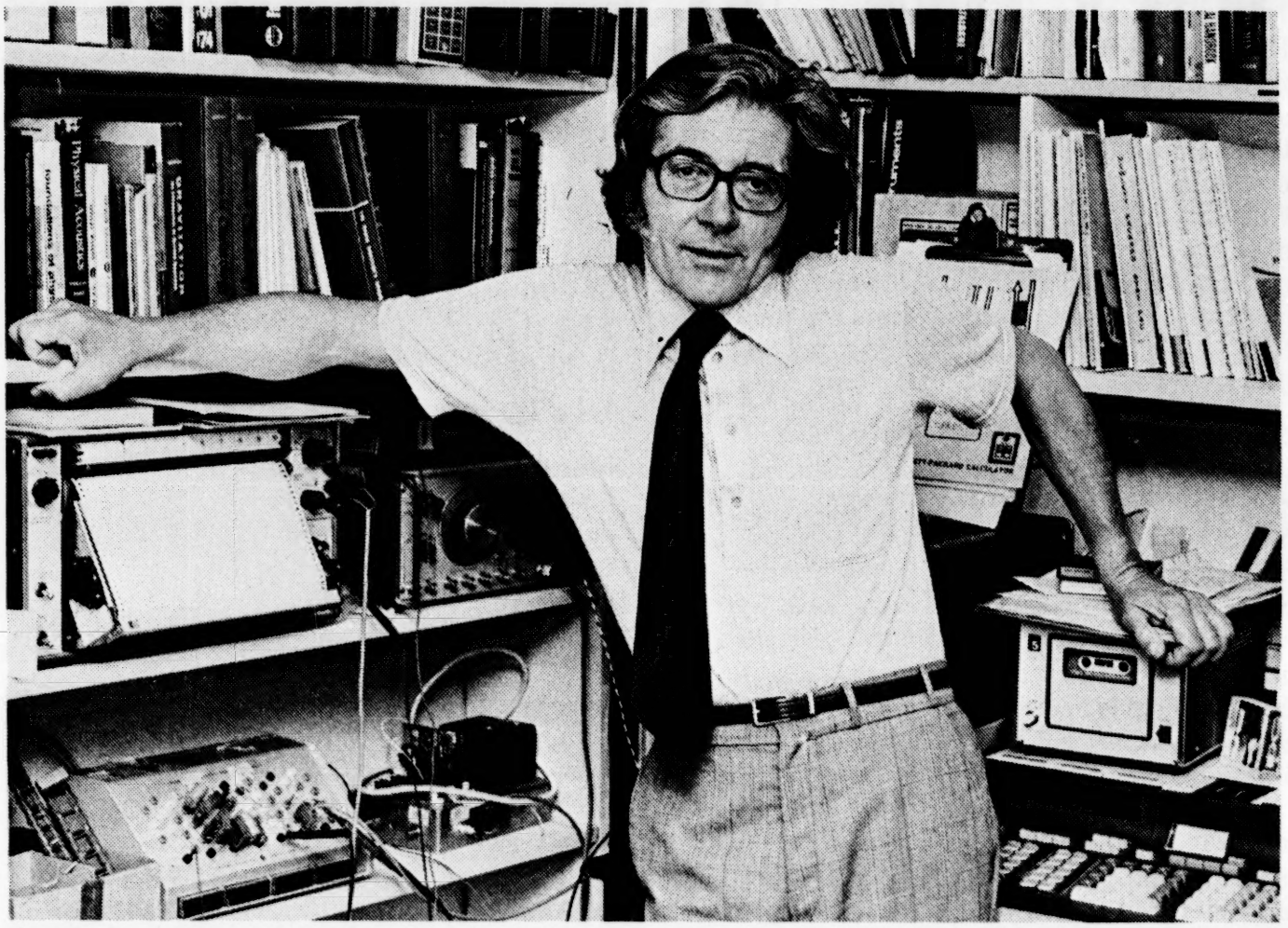
The bulk of my income in the United States came from a professorship at Baylor College of Medicine in Houston. Our plan was to stay in the U.S. for five years until we had sufficient capital to return to Britain and start up in independence. In fact we stayed there only two years and three months and returned to England no wealthier than when we left. But I did now have – in addition to the NASA consultancy, which generously they allowed me to keep on, even though 6000 miles away from JPL – offers of similar consultancies from Shell Research Ltd. and from Pye Unicam. I was able therefore to set up a thatched cottage as a research laboratory in the village of Bowerchalke in Wiltshire in the early part of 1964. So

I wanted to be able to do scientific creative work without any constraints from employers or customers. . . . Gradually I found that the answer lay in doing only those things which were truly interesting or which curiosity inspired. Strangely, the work done to answer such questions as "I wonder if" almost always led to bread and butter in two or three years' time.

far there was nothing especially unusual in this personal history. Many consultants have started similarly and I could have continued it until today rather as did my first employer with his firm in the Fulham Road.

My ultimate objective, though, was to work like the artist or the novelist. I wanted to be able to do scientific creative work without any constraints from employers or customers who, even with the best will in the world, tend to interfere. Gradually I found that the answer lay in doing only those things which were truly interesting or which curiosity inspired. Strangely, the work done to answer such questions as "I wonder if" almost always led to bread and butter in two or three years time. Not so the dull and pedestrian questions which tended to be as limited in their prospects as in their scope. A two or three year wait is not long and no worse than the time span a novelist must contend with between the first idea and the first receipt of royalties from a book he has written and has published.

Let me give you an example. In 1966 we purchased a country holiday cottage in far western Ireland, where we spent a period of about six weeks every summer. In the beginning of our visits I noticed that when the wind was from the Atlantic Ocean the air was sparklingly clear but when it blew from the European Continent it was hazy – so hazy that we could not see a lighthouse which lay a mile and a half in front of the cottage into the bay. I wondered if this haziness was smog blown from Europe, but when I discussed the idea with colleagues back in England in meteorological and air pollution establishments, they doubted that air pollution could travel so far. They suggested instead that it was the result of some strange reaction involving exhalations from the Irish Bogs. But to me it looked for all the world and sometimes smelt like Los Angeles smog. So in 1968, much to the disgust of my wife and family, I took with me on holiday a gas chromatograph equipped with an electron capture detector. The purpose



The author in his Bowerchalke laboratory.

was to seek in the air, when it was hazy, the presence of some unequivocally man-made substance. To discover the presence in the haze of the common air pollutants such as SO_2 or ozone or oxides of nitrogen would not be proof that it was man-made (such substances do occur naturally). But the presence in the haze of chlorofluorocarbons, the gases used to propel aerosol sprays, would be proof, for these are made by man alone.

That summer, when the wind came from Europe I found the concentration of these substances present in the air was three times greater than it was in the clean Atlantic air. I now had evidence concerning the nature of the smog seen in far western Ireland and this led to the development of a new study of its own. Much more interesting though, was the fact that these chlorofluorocarbons were in the air coming from the open sea. Could it be that we were breathing polluted air blown right the way across the Atlantic from America? Or were they accumulating in the world at large because they were so stable? The way to find out would be to make a journey aboard a ship or an aircraft and take samples in the northern and southern hemispheres, to examine their global distribution.

A colleague, Professor Peter Fellgett of Reading University, made several approaches on my behalf to the grant funding agencies in the U.K. and I made several to those in the U.S. All turned down our modest proposals. Among the rejections were the comments of one referee who wrote: "Every schoolboy knows that the chlorofluorocarbons are among the most stable of chemical substances. It would be very difficult to measure them in the atmosphere at parts per million on account of their lack of chemical reactivity. The proposer suggests that he can measure them at parts per 10^{12}, the application is clearly bogus and the time of this committee should not be wasted with such frivolous proposals." Such is the common fate of unfashionable grant applications. Later, during discussions with the Natural Environment Research Council on another matter, I asked tentatively if it would be possible to travel and take measurements on one of their ships on its regular journey southwards to Antarctica. The suggestion was welcomed and the NERC provided me with a passage aboard the *Shackleton* in 1971 during its voyage to Antarctica and back again. They also paid my fare and that of a graduate student so that we could respectively leave and join the ship in South America and so make measurements on both the outward and return voyages.

Chlorofluorocarbons were measured in the air on this voyage and as you probably know were found to be distributed worldwide. These measurements

led to the hypotheses of Mario Molina and Sherry Rowland and Ralph Cicerone that the chlorofluorocarbons were accumulating in the world's atmosphere and represented a threat to the ozone layer through the catalytic action of chlorine in destroying ozone (*New Scientist*, vol. 64, p. 717). Whether or not this is important to the lives of all of us, we still do not know. What is interesting is the near certainty that the measurements would not have been made when they were had it not been for the obstinate curiosity of an independent scientist.

But this was by no means my main subject of work – although it has continued to keep me interested and is now a source of funding not only for me but also for numerous scientists throughout the world. Indeed, in collaboration with colleagues world wide the monitoring of atmospheric gases including the chlorofluorocarbons now goes on with microprocessors in charge, not only at Adrigole in Ireland but also at sites in Barbados, Samoa and Tasmania as part of the atmospheric long range experiment of the Chemical Manufacturers Association. When I became independent, however, it was not my ambition to build an empire of atmospheric observatories or any other kind. When you build a bandwaggon it is important to keep in mind when and where to get off.

The continuing thread which has held together my work during the last 15 years of independent practice has been the "Quest for Gaia." It started at the JPL, where I was asked to think of a new kind of life detection experiment. I wondered if it might be possible to seek life on other planets by looking for an entropy decrease, or in other words in the presence of unusual chemical disequilibria in the planetary atmospheres. Even with the purely astronomical information available in the 1960s it was possible, using this approach, to predict that Mars and Venus were almost certainly lifeless (which, incidentally, was not considered to be good news by my sponsor, NASA). But by using the same kind of observations for the Earth, seen say from the orbit of Mars, the information available yielded an extraordinary and interesting conclusion, namely, that the Earth's atmosphere was so far from any conceivable chemical equilibrium state that not only must life be present but also that it interacts so closely with the atmosphere that the atmosphere itself might be considered as an extension of life.

In other words, the air we breathe can be thought of as like the fur of a cat and the shell of a snail, not living but made by living cells so as to protect them against an unfavourable environment. As usual with unfashionable ideas or concepts, it was very difficult to find any journal prepared to

I now had evidence concerning the nature of the smog seen in far western Ireland and this led to the development of a new study of its own. Much more interesting though, was the fact that these chlorofluorocarbons were in the air coming from the open sea. Could it be that we were breathing polluted air blown right the way across the Atlantic from America?

publish it and I am most grateful to Dr. Bernard Dixon for accepting a paper on Gaia for *New Scientist* (vol. 65, p. 304) and also Professor Bert Bolin who welcomed it in the journal *Tellus* (vol. 26, p. 2). The Gaia hypothesis states that the Earth can be regarded as a single living system which includes the biosphere, the atmosphere, the oceans and the soil. It has sustained me throughout these years as a source of inspiration for experiments and further work. Whether or not the hypothesis is right or wrong is less important than is the fact that it is a kind of refracting glass through which the world can be seen differently. Although this is the topic of my choice for work and thought, so far it has not directly served as a source of funds (although this might change if the book I have just written about it has any popularity).

The artist all too often finds no market for the work he likes to do and is consequently obliged to produce "pot boilers" to survive. So it is with independent scientists – except that our pot boilers are inventions. I have made about 30 of these, which from time to time were patented and sold and the proceeds used to sustain the family and the laboratory.

We have evolved a society in Britain in which inventors rarely benefit directly from their creations. To patent an invention world wide costs several thousand pounds and nearly all inventors find that out of 10 inventions only one is a winner. Simple arithmetic shows that this is no way to make a living. What happens in real life is that there is a market for ideas and these are sold each perhaps for a tenth the value of a winner. Or more subtly it is possible to obtain small contracts to develop an idea in the face of competition from large organisations if one possesses a provisional patent application. Then, in business jargon, the application is from a sole source and the applicant is automatically awarded the contract. By such means I have gained support for my lab by a continuing flow of contracts, mostly from U.S. agencies such as NASA and NOAA.

Lovelock and daughter taking air samples in County Cork, Ireland.

During the time I worked at the NIMR in the 1950s I was encouraged by Archer Martin to invent a number of detectors so that he could use them with his newly developed gas chromatograph. One of these was the electron capture detector and this has been a steady and still continuing basis of support not only for me but also for numerous scientists throughout the world. This is because the device is still the most sensitive chemical analytical method in existence, even 22 years after its invention, and also because it has the uncanny capacity selectively to respond to substances which are important environmentally or socially. It was the instrument which provided the background information about pesticides in the global environment which Rachel Carson used to write her book *Silent Spring* and so start the environmental revolution. It is the basis of the explosive sniffers used at airports and of course was used to measure the chlorofluorocarbons and other threats to the ozone layer.

Britain is a favourable place for independent scientists. It is a fashionable nonsense that invention and discovery are deterred by our high rate of taxation and comparatively low standard of living. This may well be true of the activity of entrepreneurs – those key figures, the middle men, who gather the harvest of invention and take it and sell it in the market place. For inventors and scientists themselves, so long as there is enough to eat, warmth to work in, and a family prepared to share, relative poverty is more of a spur than a deterrent. It is probably more difficult to work as an independent in the U.S., where the abyss of ruin through the penal cost of ill health forever causes anxiety. Also in that country it is very difficult for a family to manage on a fluctuating living standard. Cities tend to be segregated into zones of different income groups. Frequent moves would be necessary to accommodate the changes in income which inevitably occur in independence; they say in the U.S. that three moves costs as much as a fire. For me and my family the more compassionate social scene of the U.K. has made possible our independent life. Otherwise, chronic ill-health and disability which though no physical deterrent in itself would have been elsewhere an impossible financial burden.

Jumping off at the deep end is no way to learn to swim, especially when alone. So I'll conclude with a few words of advice for intending freelance scientists. First of all, on money: if you are in any way an experimental scientist you need to gather in about three times as much gross income as the wages you and your family think that you need. This is to enable the purchase or lease of equipment for your lab and maybe also office if you expect to do a lot of writing and data gathering. If it can be afforded, a minicomputer is an immense help, as a kind of mental equivalent of

Advice to the independent scientist.

1. **Don't join committees.**
2. **Don't employ anyone.**
3. **Don't bother about keeping up with literature and meetings. (You should be making the literature.)**
4. **Don't apply for grants or write proposals uninvited.**
5. **Don't live near a major city or airport.**
6. **Don't work this way if your family doesn't approve.**

the bicycle assisting in the exercise of the mind without providing power itself. You must also allow for the fees of other professionals – lawyers, accountants and patent agents. Then there is a whole range of incidental expenses. These include travel, which can be expensive if you go to the southern hemisphere to measure something; entertaining the numerous visitors who will come to see you; and of course the telephone. There are also always other and unexpected expenses such as the fees for belonging to professional societies and the cost of those few journals that you buy for yourself now that they are no longer automatically available at the library.

There are some important don'ts – especially early in the establishment of an independent practice. First, don't join committees; they may be necessary socially but they are serious drain on the slender resources of an independent. Also the other members will never understand that you alone are receiving no salary while you attend and while you do the tasks they set.

Secondly, don't employ anyone at all. If you do you are sure to stop thinking and start looking for work to keep your employees occupied. In any event, there is nothing like washing your own glassware or cleaning your own laboratory to know for sure what things you possess and where they are. Thirdly, don't bother about keeping up with the literature or about the general busy round of meetings. You should be making the literature, not reading it, and in any event how can you alone filter the good from the bad (and most of it is bad)? If you doubt this, look through a journal of your own subject of 10 years ago and review it in the light of present knowledge.

Above all, don't try to gather funds by applying for grants, or indeed by writing proposals for work to anyone uninvited. Reverse the old show business tag. Don't call them, let them call you. If they don't call you it's a sure sign you shouldn't be doing science as an independent.

Finally, don't do it if you are married and your wife does not approve and you are sure that she never will. Without the active participation of my wife and later of my family, I doubt if the sort of life I have described would have been possible. Should anyone think that this is yet another form of male exploitation of the married state, I can only say that the marriage in which the many problems and challenges are freely and openly discussed and shared seems more rewarding than one in which the partners lead separate lives.

Then there are some useful things. First, it is helpful and not expensive to form a company. Otherwise the acquisition of contracts, of credit, to say nothing of such as chemicals, radioactive materials and so on, can be quite difficult or impossible.

It is helpful also to obtain or to be invited to serve as an unpaid staff member of a university department. I have found such an association with the Department of Cybernetics of Reading University to be of the greatest value to me and I hope that in return I have been of some value to it. For example, it was a shock to find on first becoming an independent that journals which in the past had accepted my papers did so because they came, not just from me, but from the NIMR. A past editor of one journal told me that they received numerous papers from cranks who wrote from their home addresses and that it was their policy to reject without examination those papers which did not appear from an institutional address unless the writer was someone of note.

Live as far away from major centres or airports as is possible. Otherwise numerous visitors will call and interrupt your thoughts all too often. No matter how far you go, those who really want to see you will come – but the casual will be deterred. I found it to be very helpful also to have a refuge place in our cottage in Ireland, out of touch even by telephone.

This advice is not of course meant prescriptively and there is no automatic recipe for achieving independence as a scientist. But when you do so, you may find as I did that the most unexpected and in some ways most satisfying aspect of independence is the very real sense of security it provides. A man or woman with a permanent job and indexed pension rights would seem to have no worries and be free to concentrate on the work in hand. But perversely this is not so. It is the total uncertainty about the next year's job and next year's income that makes every day a possible new adventure. Indeed, it makes next year a lifetime ahead and no cause for concern today. ■

Lynn Margulis — Unlike Most Microbiologists

by Jeanne McDermott

UNLIKE MOST microbiologists, Lynn Margulis has never taken a microbiology course in her life. "I don't believe in academic disciplines. Ideas are free. It's the work that counts," explains the Boston University professor who earned her B.A. from the University of Chicago at 19 and her M.A. and Ph. D. while raising two children. Lynn Margulis counts as an authority in her field and one of this country's active and prominent scientists. She teaches full-time, heads a lab, publishes her research, edits and reviews for scientific journals, is a member of the Space Science Board of the National Academy of Sciences and has just submitted the revision of her book on cell evolution.

I wanted to interview Lynn Margulis because she served as a role model when I studied biology in college. Her ideas intrigued me when I read an article she co-authored with James Lovelock (discoverer of atmospheric freon) in *CoEvolution Quarterly** on the contributions bacteria have made to the development of the Earth's atmosphere. As a non-scientist I understood very little of the terminology but I felt excited by the way she envisioned and described the interplay of living things, both past and present. Through my excitement I realized that my image of the scientist as a white-coated man who scoffed at life's mysteries did not fit this woman. In my junior year, I switched my studies from literature to science.

Science educators realize the strength of role models in encouraging women to study science and pursue scientific careers. Although the numbers are on the rise, only 15.6% of U.S. scientists are women, and they earn, on the average, $6,000 less per year than their male counterparts. In 1976, the National Science Foundation established a program which sends women scientists into high schools and colleges to speak with young women about scientific and technical careers. Their message is simple – "Women scientists exist. You can be one." But a role model will not determine anyone's career choice when personal or educational factors are more important. I am an example in my decision to work as a carpenter and a writer instead of a microbiologist. I wondered what circumstances in Lynn's life led her to make the decisions she did.

*"The Gaia Hypothesis – the Atmosphere as Circulatory System of the Biosphere," by Lynn Margulis and James E. Lovelock, *CoEvolution* No. 6, Summer 1975.

It's typical of Lynn Margulis that when I asked for photos to illustrate this article, she sent me 22 pictures of her children and none of her working (the Baja field-trip photo came after pressure). Still based in Newton, Massachusetts, this year Lynn is in California teaching at Scripps Institute of Oceanography and at NASA Ames Research Center. Lynn's rampant non-feminist style in male-dominated science reminds me somewhat of Margaret Mead – she never slights someone for being male, only for being stupid. And, like Lovelock, she's a fine collaborator. *–SB*

Chicago, 1939, Infant Lynn Alexander (with her parents) and at 4.

At 9 a.m. Lynn's class on Protistology – microscopic organisms with cell nuclei – begins. She stands at the front of the lab while 18 students scattered at various benches take notes. As Lynn rattles off a description she animates the information with her hands, palms open, fingers extended, as if to grasp the weight of each idea. Medium tall and wearing a wrap-around denim skirt, her shoulder-length brown hair is clipped back. It softens a wide clear forehead that wrinkles into four lines when she is concerned, as she often is, that her students missed an explanation. Behind glasses her half moon eyes flash when she makes a funny comment or observation. Her voice sounds like she has been in many arguments and enjoyed almost all of them.

After an hour's lecture she relinquishes her position to a student dressed in corduroys and a white shirt. She sits back, chin in hand and listens to Joel's presentation. She knows the subject from the inside; this is her area of research. She remains silent for 3 or 4 minutes before correcting his use of a word. Like the rest of the class, Joel appears to be a serious and hardworking student, but he can't match Lynn's pace. "The terminology is incredible," he says. Lynn agrees, "It's to keep everyone out of the field." Lynn's irreverence helps demystify the aura surrounding scientific research. When Joel describes another microorganism by saying, "They don't have sex," Lynn interrupts to remind him of the practicalities which limit scientific knowledge. "Oh yes they do. It's just that no one has been able to control it in the lab."

When class ends Lynn crosses the hall into her lab. It's an ordinary room in a building whose cinder-block design dates from the fifties. Two slender windows offer a fractional view of Commonwealth Avenue while keeping out the sunlight that plays havoc with the controlled conditions necessary for experiments. Microscopes, test tubes, water baths and pH meters claim the tops of the lab benches. A friendly atmosphere prevails in the crowded room while Lynn's research assistant and some of her 6 graduate students go about their business. Glyne concentrates on counting tiny green animals with a microscope, John is on the phone to a government bureaucrat, and Steve wants to know what time his oral defence will take place.

Lynn's office opens off the lab. Books, LANDSAT satellite photographs, and pictures of her four children line the walls. During the interview, interrupted by the telephone and her daily routine, Lynn appears comfortable as she appraises her past. Quick, warm and candid, she comes across as a maverick with a keen eye for what's important.

Born Lynn Alexander in 1938, she and her three sisters grew up on the South Side of Chicago, a neighborhood known for the incongruent juxtaposition of Frank Lloyd Wright homes and the University of Chicago in the city's largest Black ghetto. Lynn's father Morris is a lawyer – at present Cook County Assistant States' Attorney, Supervisor of Building and Zoning Unit, Civil Division. Her mother Leone, who died in 1977, was a "glamorous housewife." "My family was cultured but scientifically illiterate. I went to public school until 4th grade and then switched to the university's lab school. I loved it but I was looking for young men more my speed and dropped out in 8th grade to go to Hyde Park

At Lynn's wedding in 1957 -- sister Diane (now on Capitol Hill), mother Leone, sister Joan (now Joan Alexander Glashow, wife of Nobel Laureate for Physics Sheldon Glashow, Harvard), Lynn, and sister Sharon (now Sharon Alexander Kleitman, wife of Daniel Kleitman, chairman of Mathematics Department, MIT).

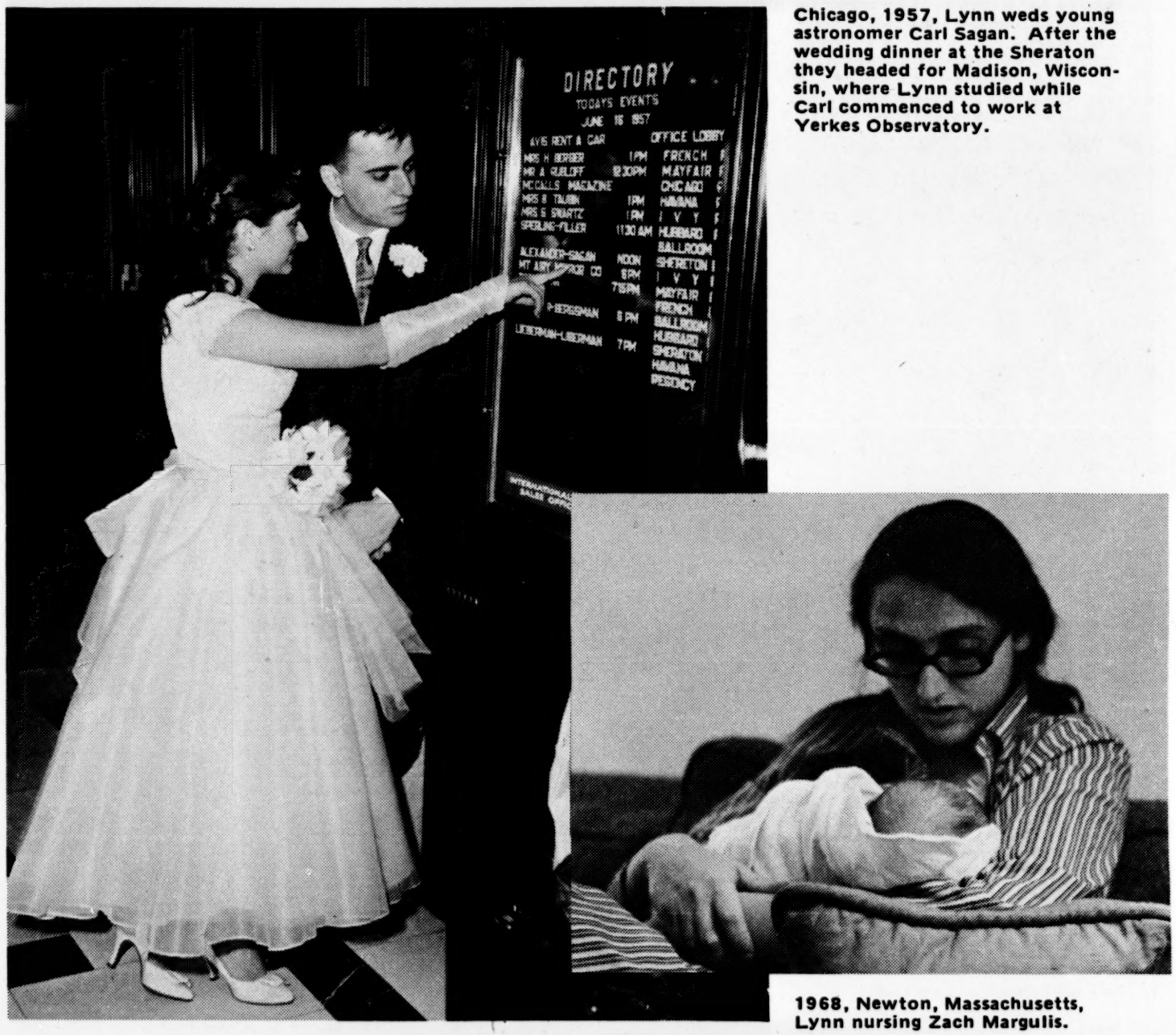
The same young women in 1947.

High. Hyde Park was 5% Black by then but the neighborhood was changing and by the time my sister started a year and a half later, it was 95% Black. It was a tough South Side school. The girls hid razor blades in their garters. Tribal warfare was going on all the time between the Blacks, Japanese, Catholics, WASPs, Jews. I hate tribalism and prejudice. Two years was all I could stand. Especially after I didn't find any interesting young men." Lynn started at the College of the University of Chicago when she was 14.

In the 1950s, the undergraduate program in the College of the University of Chicago followed a unique liberal arts curriculum. Instituted by the University's president, Robert Hutchins, the College required students to follow a basic sequence of courses which they passed by taking "comps" – European type comprehensive exams – at the end of each year. Hutchins based the program on original writings instead of textbooks in each subject. Students studied physics in the first year natural science course by reading Newton.

Lynn's face opened up as she described her undergraduate education. "Do you know that there are about 250 college presidents today who went through the UC program? I loved the education I got there. You have to understand that Chicago was a very exciting place to be because of The College. I didn't know anything about science until I took Natural Science I and II. Nat Sci II was based on the question, 'What is heredity?' It was absolutely the most exciting course I'd ever taken. It turned me on to the ideas of genetics for the first time. I think the same course was critical in motivating Jim Watson (co-discoverer of DNA) too. What connects one generation of organisms to their descendants? What is the material basis of heredity? These were the questions that fascinated us."

During Lynn's second year, she met another student who influenced her next ten years, the now well-known space scientist Carl Sagan. She describes their relationship in a matter of fact voice. "I learned a lot of science from Sagan. I



Chicago, 1957, Lynn weds young astronomer Carl Sagan. After the wedding dinner at the Sheraton they headed for Madison, Wisconsin, where Lynn studied while Carl commenced to work at Yerkes Observatory.

1968, Newton, Massachusetts, Lynn nursing Zach Margulis.

went around with him from the time I was 16. Sometimes it was off and sometimes it was on. By the time I finished Chicago, it was on again and we got married. I'd always wanted to have babies."

The couple settled in Madison, Wisconsin because Sagan had a fellowship at the University of Chicago's Yerkes Observatory in Williams Bay, a small town midway between Chicago and Madison. Because of its proximity, Lynn decided to get her master's at the University of Wisconsin. She recalls Madison with some humor, "God, I was busy. Here I was going to school, teaching subjects I had never really taken courses in. I did nearly all the cooking, cleaning, shopping, laundry while Carl was commuting from Williams Bay three days a week. Dorion was born in 1959. I found out that I was pregnant one day when I was pipetting a solution of amoebas. The next thing I knew I was lying on the lab floor, the pipette still in my mouth. That was the last time I ever fainted. Another woman in the lab, Marguerita Krause who's now doing research in Canada, was having babies at the same time. We took turns taking care of them."

In 1960, Lynn received a joint degree from the departments of zoology and genetics with a thesis entitled, "Aspects of RNA stability in *Amoebae proteus*." She says, "Madison had several great biology departments that few people really knew about. It was a real sleeper that way, I had some superb teachers, like Hans Ris in cell biology and James Crow in genetics." Looking back on that time, Lynn leaves the impression of being overworked, harassed about what to do first but very intellectually alive. "It *was* exciting. My interest in space science goes back to those days. I spent some time with the graduate students at Yerkes. These were the early days in the development of planetary astronomy. Before Gerard Kuiper trained these people, astronomers tended to be physicists who studied the stars. When the Russians launched Sputnik in 1959, planetary astronomers were a rare breed and in demand as money started flowing into space science. Now

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those former Yerkes students have top level positions around the country.

"Carl got offered a Miller fellowship in 1960 to teach at Berkeley. It paid for everything so there was absolutely no question of refusing it. I was pregnant with Jeremy when we moved to Oakland. Six weeks after he was born, I had acute appendicitis. I pumped my breasts in the hospital rather than give up nursing him. The doctor told me I had one of the worst cases of appendicitis he had ever seen. The appendix swelled up until it pushed against my backbone. I wanted to see it you know, but he wouldn't let me. The funny thing was that I never really felt the pain until just before the operation. That's when I realized that I must have been under a lot of pressure.

"I got my Ph.D. when I was 26, a little late, because I had two kids. I did it on my own and always had a struggle to get people to take my ideas seriously. The zoology department at U.C. Berkeley had a requirement that you spend a summer doing research at a marine station. Can you imagine? Me taking two kids to a marine station for the summer? No way. I dropped zoology, joined the genetics department, and did some of my work in molecular biology. The people in the molecular biology labs were physicists and chemists and didn't really know any biology. I would find myself teaching them. They knew what DNA was made of but they didn't know anything about the nucleus it was in.

"In the early '60s several scientists, including me, discovered small amounts of DNA outside the nucleus, in the organelles of the cytoplasm – the mitochondria and the chloroplasts. Most people didn't know what it was doing there. At the time, Ephrussi, a geneticist, made the joke, "There are two kinds of DNA – *nu*clear DNA and *un*clear DNA." Cytoplasmic DNA wasn't unclear to me though. Because I was familiar with the literature of the late 19th and early 20th century, I thought cytoplasmic DNA and nuclear DNA originated at different times in the evolution of the cell."

By the time Berkeley erupted during the free speech movement in the early '60s, Lynn had worked out a symbiotic theory of cell evolution that explained the behavior of mitochondria and chloroplasts which predicted the existence of cytoplasmic DNA. Since the '60s and the advent of electron microscopy scientists have observed that two distinctly different types of cells exist – prokaryotic and eukaryotic cells. Prokaryotic cells (bacteria are made of prokaryotic cells) evolved first. These cells have DNA but lack the structure of a nucleus. Eukaryotic cells (animals, including human beings, are made of eukaryotic cells) are larger, more intricate, and they evolved later. The symbiotic theory says that eukaryotic cells evolved from certain prokaryotic cells that formed increasingly intimate and eventually permanent symbiotic relationships. Various versions of this theory were proposed over fifty years ago but with little evidence to support them, they were soon forgotten. Advances in genetics and molecular biology in the 1960s provided the data that sparked Lynn's interest.

Today most textbook writers support the symbiotic theory. Other proponents include Stephen Jay Gould, a Harvard paleontologist, and Lewis Thomas, president of Sloan-Kettering Cancer Center. Gould writes in his recent book, *Ever Since Darwin*, "Margulis argues that eukaryotic cells arose as a colony of prokaryotes. The idea sounds patently absurd at first, but it quickly comes to compel attention if not assent." Dr. Thomas takes the implications more personally in *Lives of a Cell.* "I did not mind it when I learned of my descent from lower forms of life. I had in mind an arboreal family of beetle browed speechless hairy submen, apelike, and I've never objected to them as forebears. Indeed, being Welsh, I feel the better for it, having clearly risen above them in my time of evolution. It is a source of satisfaction to be part of the improvement of the species. But I had never bargained on descent from single cells without nuclei."

Like artists, theoretical scientists seek patterns in nature which unify our seemingly disconnected observations and clarify our experience. Where art carries a vision of the future, a good scientific theory is one which makes reasonable predictions that can be proved or disproved. Lynn looked for threads of information in traditionally separate fields of research – geology, botany, molecular biology, cell biology, zoology, genetics – that fit into the symbiotic theory. "I didn't endear myself to a lot of people in the school who believed in rigid borders between academic disciplines. I would go off and hear the bacteriologists lecture and then spend my lunch talking to the zoologists. I had to, just to bring it all together for myself."

The people in the molecular biology labs were physicists and chemists and didn't really know any biology. I would find myself teaching them. They knew what DNA was made of but they didn't know anything about the nucleus it was in.

Lynn observes in retrospect, "Part of the idea for cell evolution through symbiosis came from old arguments in taxonomy. Take *Euglena.* It's a single-celled alga that swims and photosynthesizes. Most botanists classify *Euglenas* as plants, and most zoologists consider them animals. It drove me crazy. People usually shook their heads and shrugged it off saying, "It's just taxonomy." But I knew there had to be something more to it. It made so much more sense if you looked at the plant/animal question from a cellular point of view. In that light, a chloroplast, the photosynthetic part of a plant cell, for example, looks like a symbiotic prokaryote."

In 1963, Lynn finished her Ph.D. thesis research and moved back East where Sagan had accepted a Harvard professorship. "California is great for a few months mid-winter," she explains, "but I like the intellectual stimulation of the East much better." Shortly after settling in Boston, Lynn's marriage formally ended. During the next four years, she worked part-time, lecturing at Brandeis and writing elementary science school materials for children (including an imaginative pamphlet on estimating huge numbers called "Peas and Particles"). She also raised her two children, although she says, "I was too busy to be a good mother."

Lynn continued working on the symbiotic theory without pay or an academic position. One day she came across a list drawn up by British crystallographer J.D. Bernal of ten important unresolved scientific questions. One question was the origin of the nucleated cell. Lynn thought she might have the solution. "I quickly wrote Bernal a three-page reply, xeroxed 20 copies and sent them out to scientists in the field who I thought might be interested. The responses that came back were like a Rorschach test! Some people corrected my English. Some told me to get out of 'their' field. Bernal told me I'd solved the problem." Lynn followed up her short reply with a longer paper. It was rejected 10 or 15 times before the *Journal of Theoretical Biology* finally published it in 1967. Lynn laughs, "The paper got better and better each time someone criticized it."

1967 marked a turning point in Lynn's life. Boston University hired her and she married Thomas N. Margulis, an x-ray crystallographer at the University of Massachusetts. She describes her relationship with Margulis as "great." As for her work at B.U., "I began by working part-time. My chairman, George Fulton, said I was the only part-time person he knew who worked time and a half. But that's the way I am. I lectured introductory biology courses and kept my research going. Now I'm teaching just two courses – protistology and environmental evolution. They're both good courses, but environmental evolution is almost too innovative for B.U. faculty. No textbooks, no grades. It's all based on the students taking an active role. They give oral presentations, listen to tapes, give each other evaluations." Lynn received tenure in 1973 and became a full professor in 1977. She reflects,"I like B.U., especially my colleagues and students. I have free rein here. It's not rich like Harvard or M.I.T., but then there are very few prima donnas either. I suppose the worst things we face are apathy and mediocrity."

James Lovelock comments on Lynn Margulis

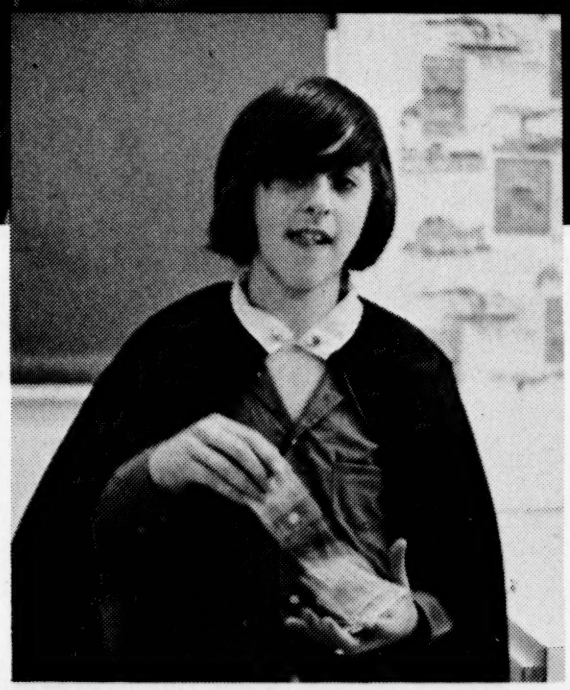
I greatly enjoyed reading the interview with Lynn for the next issue of *CoEvolution*. I learnt a lot I did not know. For instance, it had never previously registered with me that Lynn grew up on the tough South side of Chicago and had experienced enough of tribal conflict to give lifelong immunity. I grew up on the South side of London in the shadow of Brixton prison so I know just what it means, except that with us all being different species of WASP it was class rather than tribal war.

I have been lucky with colleagues and almost all of my experiences in sharing and developing ideas have been happy ones, but none of them were quite like working with Lynn. Some ideas just slip out, others, like Gaia, have painful and protracted births. Without Lynn's patience, wisdom, and encouragement, Gaia would probably still be waiting delivery.

*You can get Lovelock's brand new book **Gaia** for $11.95 from the Oxford University Press or the Whole Earth Household Store or your alert bookstore.*
–SB

Enroute, 1973, the whole family — Jeremy, Jenny, Lynn, Zach, Dorion, and husband Nick (Thomas N. Margulis). They decided on the University of Washington for their sabbatical as a compromise between England (Lynn) and Berkeley (Nick).

At present Zach "is getting very good at math and Latin at Roxbury Latin School," Jenny "does ballet, she's even on toe, and helps teach gymnastics in Newton," Dorion "is studying comparative literature at the University of Massachusetts," and Jeremy "plays a wicked blues, jazz, rock harp, is off to Southern California to seek his fortune."



1973, Newton, 13-year-old son Dorion, "a budding magician who later won first place for the northeast youth division of the International Brotherhood of Magicians for his sleight of hand."

In 1970, Lynn saw the publication of her symbiotic theory in *The Origins of the Eukaryotic Cell.* The book, which substantiates the symbiotic theory in greater detail than had ever been done before, received mixed reviews from the scientific community. Lynn feels the criticism was justified and let the book go out of print. She has written a new, more comprehensive one under contract to W.H. Freeman & Co., San Francisco called *Symbiosis in Cell Evolution*, which is expected to appear in 1980.

Whatever its faults, *Origins of the Eukaryotic Cell* raises some important points – one of which Lynn and co-author K.V. Schwartz are developing in another book, also under contract to Freeman. The age-old classification of all living organisms as either plant or animal is a failure because microscopic forms of life are unique and fit neither category. Lynn supports the argument of Cornell University ecologist R.H. Whittaker for a five kingdom system of classification. This book, which she hopes will be a general high school and college reference, has drawings and photographs that document members of the five kingdoms – the prokaryotic microorganisms (Monera), the eukaryotic microorganisms and their descendants (Protocists) and the large eukaryotic organisms (Fungi, Plants and Animals).

In addition to her teaching and research, Lynn chairs a Space Science Board Committee on Planetary Biology and Chemical Evolution (PBCE). Through the National Academy of Sciences, the board is responsible for advising and developing

May, 1979 in Baja California seeking modern analogues of ancient anaerobic microbial communities. The ancient microbes are preserved in rocks, the modern ones live in stratified mud. Lynn and Alejandro Lopez Cortes, a student from the University of Mexico.

research strategies for NASA. Lynn enjoys this duty, which involves several meetings a year. "It's incredible if you stop to think about it. NASA is the only federal agency in the country that looks at the Earth as a whole. It's the only federal agency that does strategic science planning on a huge scale. You need input from people outside the government when you have a budget of hundreds of millions of dollars. The Space Science Board is unique. I feel my committee's activities are important because in trying to work out policy for planetary biology we are in the throes of forming a new field of science."

A complete account of Lynn's work fills 20 pages of her curriculum vitae, listing awards from universities and professional societies, lectures she has been invited to make in foreign countries and in two foreign languages which she speaks fluently. She sits on editorial boards, edits journals, writes articles, reviews, pamphlets and books for popular as well as technical publications, directs student research and theses, works on films and gets grants. (Lynn admits, "I'm not a great grant getter. I've always had a one-to-one correlation between personally speaking with the grant officer and receiving the grant.")

Out of this flurry of activity emerges a picture of a scientist whose fascination with the evolution of life reaches from the simplest microorganisms on Earth to the possibility of life in outer space, from a fossil record billions of years old to the future of the Earth's atmosphere. Her theoretical work reflects a creative and synthetic mind that is not bound by convention or hampered by taking risks. Underlying her efforts is a commitment to illuminating one of life's most tantalizing questions, one that still spurs controversy and conflict as the testable authority of science displaces the untestable authority of religion: how did life originate?

At the end of the interview Lynn invited me home for dinner. She lives in a comfortable Victorian house in Newton with her husband, and the children, Zachary, Jenny and Jeremy. (Dorion is studying comparative literature at the University of Massachusetts in Amherst). She often rides her bicycle the five miles from her home to her office, savoring the time when she's free from the incessant ringing of the telephone. Even with a heavy workload, Lynn returns home by 5:30 to cook dinner. She reserves Saturdays for writing, closing the door in her office and insisting on quiet. She explains, "I just can't get anything done when people are walking in all the time."

I rode home with Lynn on a borrowed bicycle. I was accustomed to the brisk autumn darkness because I had been riding my bicycle from my apartment to the loft I was renovating on Manhattan's lower West Side. We arrived just as Zach and Jenny finished setting the table. Over dinner we talked about a recent teacher's strike, vegetarianism and my work. I wasn't surprised when Jeremy looked unimpressed about my work. A woman carpenter isn't too remarkable when your mother is a scientist as gifted, inquisitive and imaginative as Lynn Margulis. ■

Enskyment

by Antler

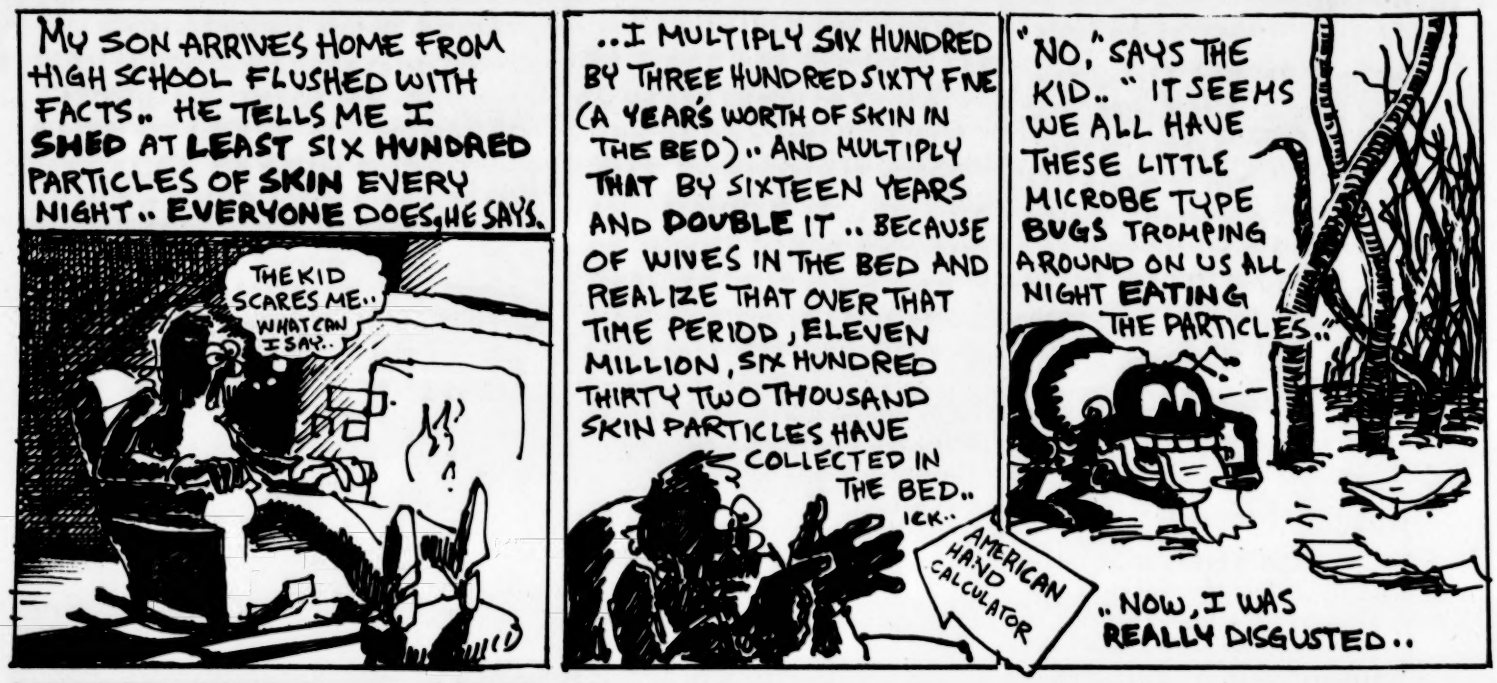
Imagine being buried in air,
in the light blue earth of the sky,
Slowly lowered into thin atmospheres
on pulleys of evaporation
While shovels of clouds shovel clouds over you
and you hear far away
The last spadefuls of steeples and fireworks
and clapping and laughter
And birdsong and forests and mountains
all scooped on your immense grave of sky!

Imagine those heavenly maggots:
lost kites, lost balloons,
Seeds we make wishes on,
butterflies, fireflies,
Wingspreads of vultures,
and all the nibbling stars,
And branches of trees really roots and roothairs?
And rainbows really the tunnels of moles?
And earthworms peeping from their holes
really birdbeaks probing the earth?

What exquisite decay!
All the warmth the sun gives as it melts you!
All those tons of cirrus, stratus, cumulonimbus!
Skyquakes of lightning!
Your flesh unpetalling in downpours!
Your body become all sunset and ozone,
delicate rumbles of vanishing thunder!
And the aroma of sky after rain
and earth after rain
All that's left of your corpse. ■

Admirers of Antler's "FACTORY" in the Winter '79/'80 **CQ** *might enjoy seeing more of his range and knowing that "born Jan. 29, 1946 [he] was raised in Wauwatosa, Wisconsin as Brad Burdick & given the name Antler in his 18th year" – says Allen Ginsberg. Both "Enskyment" and "FACTORY" are from Antler's book* ***Last Words****, which is seeking a publisher. –SB*

DAN O'NEILL'S SITTING BY THE FIRESIDE DRINKING GIN AND DRINKING WATER..



THE THOUGHT OCCURRED TO ME ONE DAY..

TITLE IS FROM ANCIENT CELTIC COURTSHIP SONG ABOUT O'REILLY'S DAUGHTER..

I FEEL SURE THAT THESE BUGS HAVE DEVELOPED A TECHNOLOGY BASED ON A SKIN PARTICLE BURNING ENGINE ..

PUTT PUTT PUTT

DEPENDENT NOW ON A LIMITED SUPPLY OF ENERGY FUEL, POLITICAL TENSIONS WOULD DEVELOP.. BORDER INCIDENTS OCCUR LEADING TO A WAR ATMOSPHERE

BUGS GUARDING PARTICLE STOCKPILE NEAR BELLY BUTTON..

BEFORE YOU THINK ALL THESE CONJECTURES ARE FRIVOLOUS, REMEMBER HOW WE ALL AGREED WE ARE WHAT WE EAT..? ISN'T IT LOGICAL TO SAY WE ARE ALSO WHAT EATS US?

SEARCH AND DESTROY MISSION INSIDE EARDRUM.

I BEGIN TO THINK THE ATTITUDES OF WHO IT IS THAT IS EATING THE DEBRIS OF MY BODY ARE POSSIBLY AFFECTING ME..

PERHAPS THEIR CAVALIER ATTITUDE TOWARDS ME, THEIR WORLD, IS CATCHING.. THIS MIGHT EXPLAIN WHY I STILL THROW CIGARETTE BUTTS OUT THE WINDOW OF THE CAR...

TACTICAL NUKES RAISING BLISTERS

RED FORCES ATTACK OVER KHYBER PASS TYPE WRINKLE IN RIGHT THUMB..

NEWS FLASH!

THE COLORADO RIVER IS POLLUTED BY RADIUM.. TAILINGS FROM URANIUM MINES UPSTREAM.. MILLIONS OF PEOPLE DRINK AND WASH IN THIS WATER..

THE BUGS PROBABLY DEVELOPED THEIR NUCLEAR CAPABILITY IN THE LATE SEVENTIES..

—BUG NUCLEAR ENGINEER—

..SOON AFTER DISCOVERING THE RADIUM TRACES.. THE RISE IN SKIN CANCER IN THE LOS ANGELES AREA WOULD LEND CREDENCE TO THIS THEORY..

I FIND MYSELF IN THE TUB FREQUENTLY NOW, DROWNING ALL THOSE LITTLE BELLIGERENTS AS MUCH AS POSSIBLE.. WASHING THEIR NASTY LITTLE WEAPONS AND ITCHY LITTLE MOTORCYCLES AWAY..

I TRY NOT TO THINK OF THEY WHO WAIT DOWN IN THE DRAIN..

The Eighth Day of Creation

Like begets like. It has been known from antiquity that children tend to be more like their relatives than their friends. But it was not always clear that there would be any rules of genetics specifying how this is. Perhaps the most amazing achievement of the 20th century is: yes, there are rules of heredity determining how traits pass from parents to offspring and they are precise and fixed. The basic concept of molecular biology is that the phenomenon of inheritance can be understood by the languge of chemistry. The rich multipersonality of the history of this concept is the subject of this book.

The rules for transmission of traits are not altered by environment or education at all – even if the final product of the rules – the individual – can be. Furthermore the blueprint in all its intricacy and detail is not a flat design at all; it is more akin to a computer tape with a very long line of information symbols.

Classical genetics got this far. By the 1940s it was quite clear to scientists that precise rules of inheritance were carried on chromosomes in the nuclei of cells, that a child received half of its chromosomes from each parent, and that the chromosomes themselves were composed of stable faithful genes that determined many measurable traits. But only to enormously innovative and bold thinkers such as James Watson and Francis Crick was it clear that chromosomes must be material – chemicals ultimately, and comprehensible in chemical terms.

There are three parts to the book's wandering saga. The first is the discovery of the composition and structure of the long chain DNA moleclue which is the information bearer of the chromosomes – a story told by Watson in **The Double Helix,** *by Anne Sayre in* **Rosalind Franklin and the Structure of DNA,** *and by Robert Olby. The second is the understanding of the sex life of bacteria and the relationship of their genes to their physiological capabilities. This led to the concept that genes can be turned on and off and make enzymes, which can break down potential food molecules and convert them into food, for example. But genes don't make enzymes directly – they have a complex way of doing it involving other long chain molecules, RNAs. The third part is that enzymes are really proteins, themselves long chains of amino acids, and that what genes really do is determine the order of amino acids in proteins. Proteins fold and function. Thus by 1965 the "central dogma" of molecular biology was established: DNA makes RNA makes protein – DNA is genes, proteins function, life obeys the rules of physics and chemistry in its own particular way.*

Judson has told the whole story masterfully. Here are the physicists who learned biology to solve the riddles of life – Max Delbruck, Salvador Luria, Walter Gilbert and others; the crystallographers and protein chemists who doggedly solved the structures of the large molecules, each atom in place – Maurice Wilkins, Max Perutz, Rosalind Franklin, Vernon Ingram, Fred Sanger and others; the microbial geneticists who worked out the rules of behavior of genes in viruses and bacteria; the fabulous French – Francois Jacob, Andre Lwoff, Jacques Monod, Ellie Wollman; and Seymour Benzer and Joshua Lederberg in the U.S.A. In the background, members of the noble profession of biochemistry, a field that emerged from medicinal chemistry, were the empirical wet chemists – Erwin Chargaff, Felix Haurowitz, Herman Kalckar, and others.

Then as the quantity of information bearing on the problem increased, a field in itself was founded, that called "molecular biology." In many biologists, these two words still inspire fear, awe, and admiration. Matthew Meselson, Franklin Stahl, Marc Ptashne, Sydney Brenner always were molecular biologists. The variety of scientific styles, the international flavor of the enterprise, the incredible impatience and devastating criticism, the working holidays in Cold Spring Harbor, New York, or at Cal Tech in Pasadena, California, the spirit of lab discussion in the corridors of the Institut Pasteur in Paris or of Cavendish Laboratory and later the Medical Research Council in Cambridge – all come alive in Judson's book.

The hammer pounding preoccupation of Crick's genius, his dedication and persistance in tracking the truly important – he is the outstanding verbose flamboyant leader (the precocious Watson having left the game after the major battle to solve DNA was won). A major theme of the book is the amazing scientific cohesiveness to much of this group, which from the outside is easily misperceived as self-adulatory arrogance. An example is the "RNA Tie Club" – 24 members, each named after

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CIA Atlases

One of the things I learned while working on the **California Water Atlas** *is that it's hard to find cartographers: "They all work for the CIA." And their work, the CIA maps, are well-known and well-regarded. But I never knew the Agency did atlases or that they are so fine. As suggestor Henricks says, "no fat, just good hard facts and figures that are interesting as hell." These three are all we've heard about (The Indian Ocean atlas has increased considerably in significance recently.) BARGAIN prices. –SB*

[Suggested by Ron Henricks]

Polar Regions Atlas
Central Intelligence Agency
1978; 66 pp.
$5 postpaid

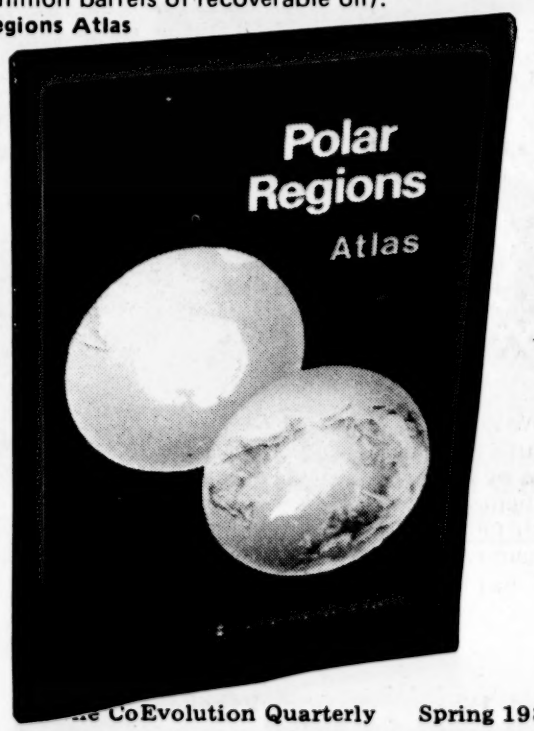
People's Republic of China Atlas
Central Intelligence Agency
1971; 82 pp.
$6.50 postpaid

Indian Ocean Atlas
Central Intelligence Agency
1976; 80 pp.
$5.75 postpaid

All from:

Supt. of Documents
U.S. Govt. Printing Office
Washington, D.C. 20402
or Whole Earth
Household Store

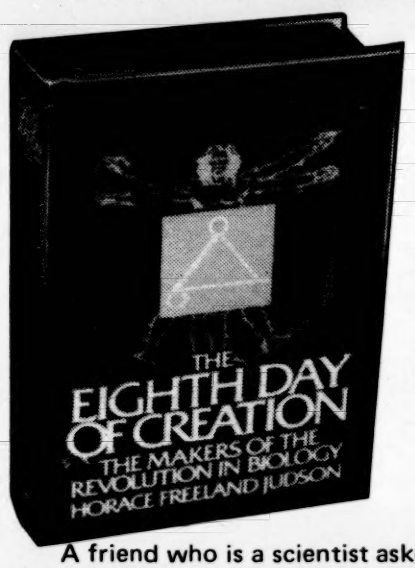
Some authorities have estimated that reserves of 45 billion barrels of oil and 115 trillion cubic feet of natural gas may be in the Antarctic, but these estimates are highly speculative. . . . for a petroleum deposit to be economically exploitable in Antarctic conditions, it would probably have to rank in the giant or supergiant category (more than 500 million barrels of recoverable oil).
—Polar Regions Atlas



a protein or DNA subunit, who rapidly exchanged scientific information informally.

Judson has done a major service. Reading his work is the least painful way I know to learn the ideas of molecular biology. Certainly the literature of this swollen field is not known for its style, accessibility, or even logic. It tends to be abstruse, riddled with abbreviations and in-group assumptions. Judson is guilty of some misemphasis (as pointed out by Thomas Jukes in **Nature** *Vol. 281, October 11, 1979, p. 505), inevitable in a study of this magnitude. But in spite of its occasional excesses and foibles, gullibility and chattiness, personal flavor, detailed documentation, notes, index, and scientific heaviness — or perhaps because of these — the book is fun. It is important and in the end, a pleasure to recommend.*

—Lynn Margulis



The Eighth Day of Creation
(Makers of the Revolution in Biology)
Horace Freeland Judson
1979; 686 pp.
$15.95 postpaid from:
Simon and Schuster
Order Dept.
1230 Avenue of the Americas
New York, NY 10020
or Whole Earth Household Store

A friend who is a scientist asked me one day, "Who was Jim Watson competing with?"

Not with Pauling, I said. That competition was factitious.

"Not with Rosalind Franklin, either," he said. "She didn't really count, after all. Yet Jim's book reeks of competition."

The book laid the competition to Pauling, I said.

"But Jim didn't love Pauling," the friend said. "He loved Francis."

I waited.

"There has to be an extraordinary interaction between two people, before the mind can do what they did. Jim and Francis talked in half sentences. They understood each other almost without words. Modern science is said to be run by teams — but not in this sense at all. Jim and Francis were pretty nearly unique. Perhaps Luria and Delbruck had it at one time. Jacques Monod and Francois Jacob. I've known it myself briefly. And Jim and Francis. That marvellous resonance between two minds — that high state in which one plus one does not equal two but more like ten. It can't be common. Linus Pauling and Francis are as nearly alike as any two you could imagine, in brilliance, in strength and dominance of mind — even in looks, as Jim recognized at once. But if Jim wasn't competing with Pauling, who was he competing with really? Who are the other candidates?"

Did my friend think Watson was competing with Crick, I asked.

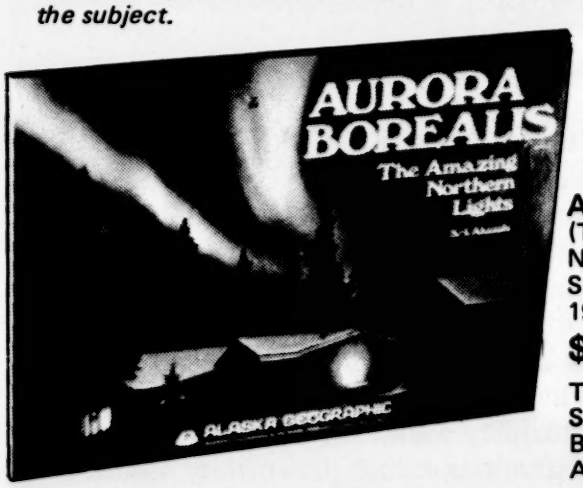
He nodded, with a slight smile. "Yes," he said. "Understand me. The love and the competition are one and the same. You want to have esteem in the other's eyes. Jim was a young Chicagoan with a Midwestern accent, meeting the English for the first time. He brought to Francis that vacuum you carry with you when you come from Chicago. Francis was the one whose regard moved Jim. You want to excel. You want to perform for the other."

" 'Mein Gott! They've got tails!' " First electron-microscope photographs of bacteriophage: phage T2, magnified about forty thousand times, taken in March 1942 by Thomas Anderson from phage preparations by Luria.

Aurora Borealis

Few phenomena give Earthlings as distinct and emotional a sense of their planet-as-astronomical-event as northern lights. Their awesome flickering silence has been even cited as close to the mystical event of facing Godhead, the Being of Being. How fine then to have a wonderful book full of color photographs and clear diagrams and the abundance of Alaskan experience to illuminate the subject.

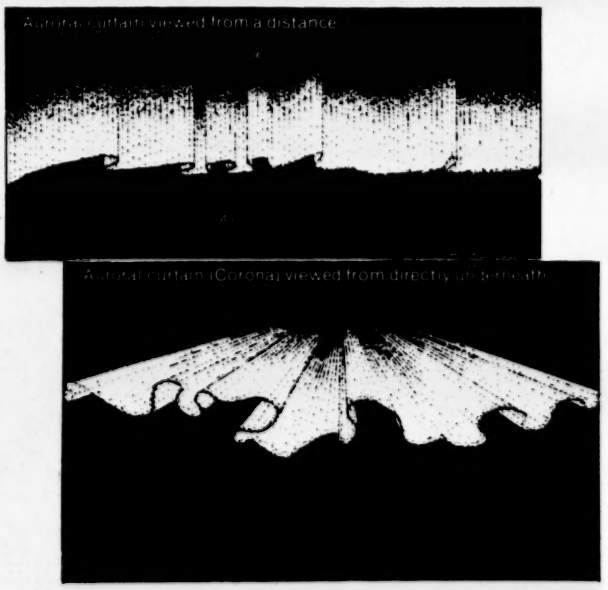
—SB



Aurora Borealis
(The Amazing Northern Lights)
S.-I. Akasofu
1979; 96 pp.
$7.95 postpaid from:
The Alaska Geographic Society
Box 4-EEE
Anchorage, AK 99509

We lay silent with upturned faces, watching this wonderful spectacle. Suddenly, the scattered lights ran together, as by a common impulse, joined their bright ends, twisted them through each other, and fell in a broad, luminous curtain straight downward through the air until its fringed hem swung apparently but a few yards over our heads. This phenomenon was so unexpected and startling, that for a moment I thought our faces would be touched by the skirts of the glorious drapery. It did not follow the spheric curve of the firmament, but hung plumb from the zenith, falling, apparently, millions of leagues through the air, its folds gathered together among the stars and its embroidery of flame sweeping the earth and shedding a pale, unearthly radiance over the wastes of snow. A moment afterwards and it was again drawn up, parted, waved its flambeaux and shot its lances hither and thither, advancing and retreating as before. Anything so strange, so capricious, so wonderful, so gloriously beautiful, I scarcely hope to see again.

— Prose Writings of Bayard Taylor, 1864



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BETWEEN TEXT AND
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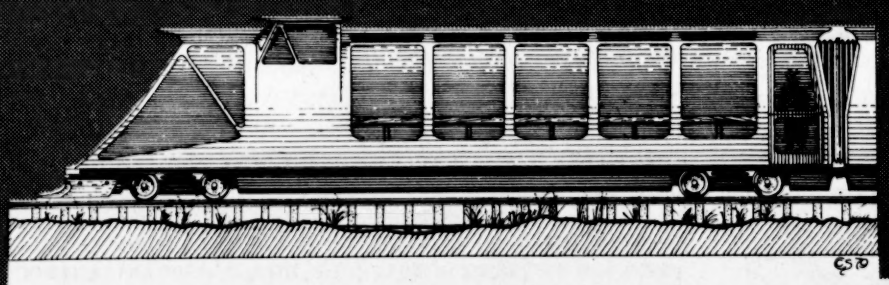
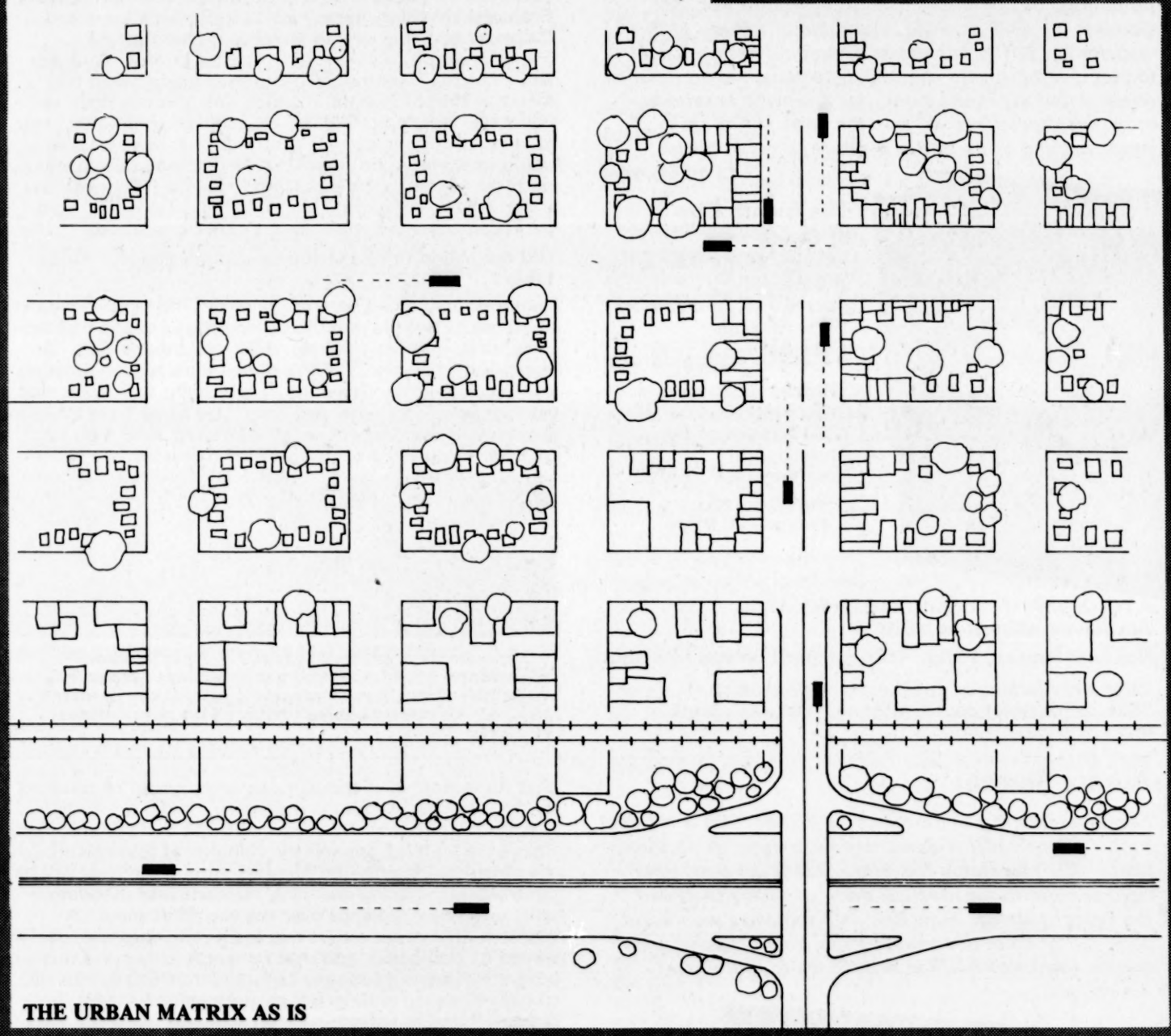


LIGHT

by Christopher Swan



THE URBAN MATRIX AS IS

Typical block pattern common in the U.S. — freeway and railroad paralleling one another. Buses function only on the major boulevards and freeways with the remainder of the streets given over to automobiles.

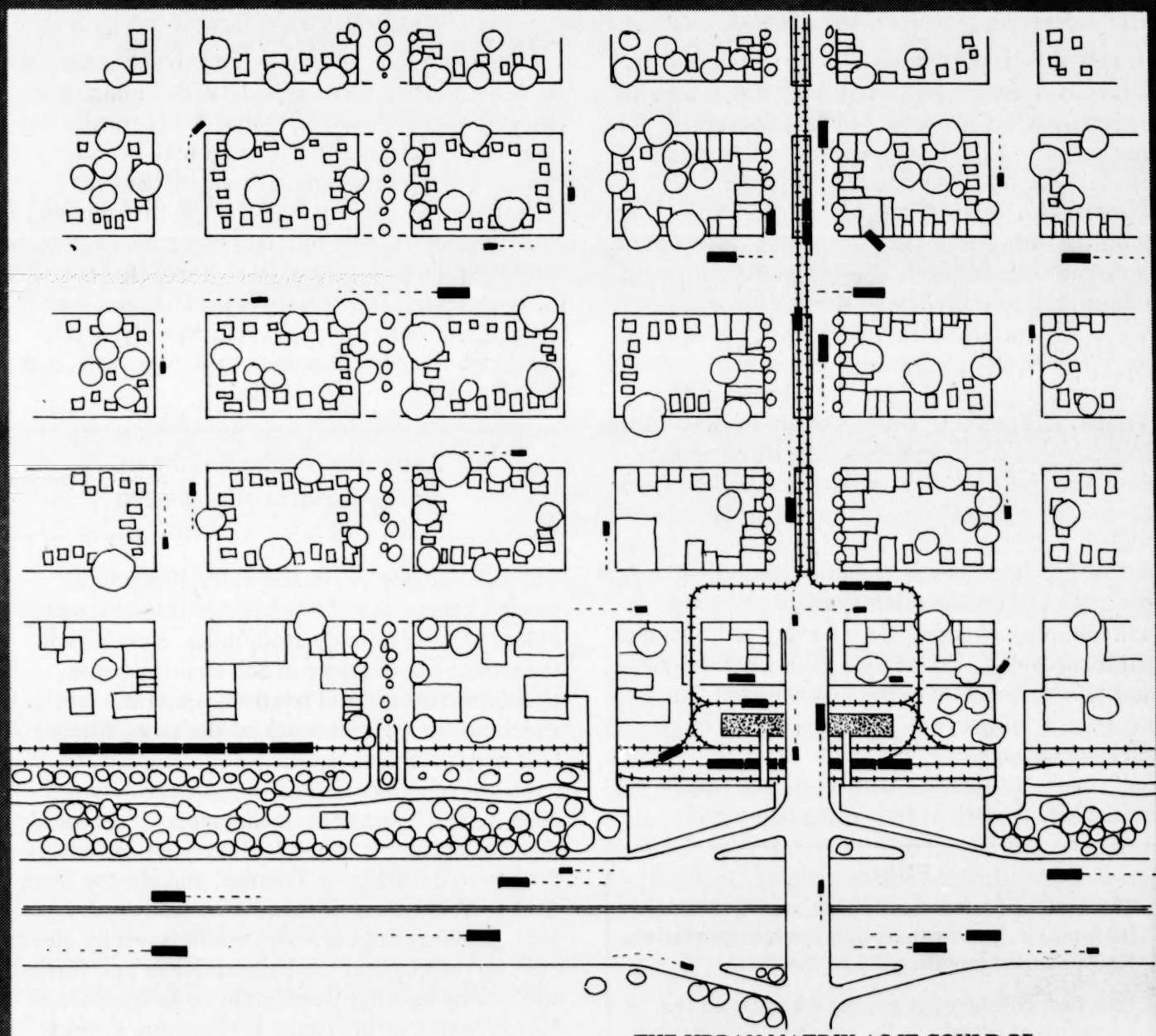
Christopher Swan is the author and illustrator of the highly-regarded and highly-unconventional ecotopian book YV88 (Sierra Club Books, 1977), which proposed in elaborate detail exactly how the Bettered Yosemite Valley National Park could be saved. Naturally, the principal instrument of salvation is light rail. Unlike most rail buffs, his prime orientation is future rather than past. As the price of oil climbs, his proposals are being taken seriously by increasingly unstarry eyes. —SB

WHEN WE WALK OUT OF OUR HOMES we often reach for the car keys before the door is even shut. The automobile, indeed, all transportation, is inextricably bound into the social fabric of the United States. Unlike older cultures with a commensurate involvement with technology the U.S. contains few urban areas old enough to have been built around the distance one could comfortably walk. On the contrary, most of our communities are almost entirely oriented around transportation — especially the automobile. Thus mechanical transportation of a fairly sophisticated variety is literally the glue that binds our lives into patterns. The increasing cost of basic fossil fuels, manufacturing, and auto maintenance threatens to strain this binding connection.

F PHOTOGRAPHIC CONTRAST
ND BACKGROUND, THIS PAGE
CE WELL.

RAIL ·HOW TO MAKE IT WORK

Drawings by Christopher Swan



THE URBAN MATRIX AS IT COULD BE

How American rail really worked

Transportation alternatives are not only available but startlingly obvious. The United States is a culture rich with forgotten treasures. Our cultural attic contains millions of bits of knowledge and technology stored in all the forgotten corners we busily race by. Our history provides us with a wide range of possibilities in transportation – dirigibles, luxurious passenger trains, locally-owned shortline railroads, coastwise shipping, simpler automobiles, stagecoach lines, and neighborhood bus lines. None of these tools are fantastic new inventions that may or may not be possible but real things that were once taken for granted. *more →*

This is not a plea for nostalgia – rather an exercise in perusing the past for worthwhile models, examples of things that existed when we did not use energy and resources the way we do now, when we were just learning how to waste. We may have lost much of our natural non-renewable heritage, but history, as it resides in our museums as well as our minds, is always a renewable resource.

History tends to be written in the words of those who spoke the loudest, a tendency not necessarily reflective of a wide range of human potential. The history of transportation, indeed industrialization, is usually written as if the New York Centrals, General Motors and Westinghouses did it all. They didn't. Other trends were happening. While most mainline railroads were fossilizing into managerial armies settling in to defend themselves against waves of new technology, hundreds of rural shortlines dependably performed work with little fanfare and little profit. They had names like the Virginia & Truckee; Nevada County Narrow Gauge; Moscow, Aberdeen and Rockfish; Rio Grande Southern; East Broad Top; Tonopah & Tidewater; Carson & Colorado; Boca & Loyalton; Sumpter Valley; and Sierra Railroad. Most didn't go far or fast – 20 - 200 miles at a comfortable 30 - 40 miles per hour. Track was often weed-grown, rough, and sinuously wrapped around every protuberance nature provided. Trains were generally infrequent and often referred to as the "daily mixed," meaning a short string of freight cars with maybe an ancient passenger car coupled on as a half-caboose, half coach. In some cases they utilized locally available fuels such as turpentine-rich pine in Georgia or soft coal mined as needed along a mountain track in southern Colorado.

In style each railroad was reflective of the communities it served – the poor ones running ancient steam locomotives held together with chewing gum and baling wire, the rich running with pride shown in polished boilers on glass-smooth track. Like the rural towns they served, they tended to be slow – to the next town, to change, and to acknowledge speedy urbanity. By the mid-1950s hundreds of shortlines had vanished. Only rotting trestles, maybe a locomotive in the town park, and a weedy bump in the fields remained. But the history of these railroads and those that remain in use provides a model of relationship between technology and place – a practical model that is not always bigger, always more expensive, and less human, but rather one that is intimately tied to local values, does not pursue endless growth, and provides plain effective service.

FUEL

The United States uses approximately 25% of its total energy consumption for transportation. Railroads use less than 3% of the total.

One fuel efficient car getting 40 miles to the gallon of diesel
In optimum freeway conditions
with six passengers
gets 240 passenger miles per gallon

Intercity bus full of folks: 260 passenger miles per gallon

747 on the milk run to London: 62 passenger miles per gallon

Standard diesel electric U.S. passenger train: 500 passenger miles per gallon

Intercity bus traffic has not increased appreciably since 1950
Does anyone really like buses?

Urban bus system use has increased 21% since 1972

Freight trains: about 670 BTU/ton-mile
Trucks: about 2800 BTU/ton-mile
Airfreight: about 42,000 BTU/ton-mile

Late '30s – The height of our transportation system

Through the late 1920s and early 1930s there existed a tenuous but workable balance between older rail systems and automobiles, especially in the cities. For example in San Francisco one could ride smooth and relatively quiet electric streetcars throughout much of the city. Where hills were prohibitively steep for streetcars, the remnants of a once-extensive cable car network plied narrow apartment-lined streets. You could ride a cable car or trolley to a ferry, cruise across the bay to Sausalito or Tiburon, and choose from electric trains going north to practically every town in Marin County. You could travel by steam train up the coast to the Russian River and further north or by another steam train to Santa Rosa or Eureka, much of the route approaching Eureka along the Eel River through dense redwood forests. Or there was an electric train through the wine country to Calistoga via Napa and Sonoma. If you felt like an excursion you could take another electric train to Mill Valley, step off in the center of town and board the Mt. Tamalpais & Muir Woods Railway for a noisy steam-powered ride to the top of the mountain capped by a ride back in a 30-passenger open gravity car coasting down what was affectionately known as the "crookedest railroad in the world."

If your destination was the East Bay, you could either drive (after 1937) over the Bay Bridge or take a streetcar to the Ferry Building on the waterfront or the Trans-Bay Terminal. The ferries – 200-foot-long side-wheel, double-ended, car-carrying behemoths – would carry you across the

From Pasadena in 1886 the city trolley gave idyllic access to the countryside.

Bay to the Oakland "Mole," a huge train terminal. After a short walk through the immense wooden trainshed you could board over a dozen steam trains leaving for practically any point on the continent including, via one or two connections, Canada and Mexico.

If you'd chosen the Trans-Bay Terminal instead, you could have ridden modern electric trains over the new Bay Bridge and into almost any community within Oakland, Berkeley or Richmond. In many cases those trains, the Key System, connected to a wide variety of local streetcar lines that spread yet further into the suburban reaches. Finally, as if in a last gasp of intelligence, it was possible for a few years in the late 1930s to ride short electric trains with dining service and open-ended observation cars from the Trans-Bay Terminal, across the bridge, through the Berkeley Hills, out through then rural farmland around Walnut Creek and Concord, across the Sacramento River on a train-carrying ferry, over the marshy delta on levee and trestle, through the streets of Sacramento, north along the Sacramento River, and on through endless fields to the towns of Marysville and Chico. Two hundred and fifty miles by quiet, non-polluting, and extremely comfortable electric train.

Similar networks existed throughout the United States, Canada and Mexico, and they co-existed with automobiles. Typically one could go 70 miles from San Francisco to Sacramento by: foot-trail, though in places it might've been difficult to find; by dirt road; by private car on paved two-lane roads and four-lane boulevards; by steam trains either local or express; by electric trains via two routes; by buses, also local or express; and by riverboat. It all went from downtown to downtown and it connected in such a way that was at least possible to use all those means in one journey!

Collapse and Amtrak

In the 1940s and '50s this vast network began to fall apart. Though a variety of factors caused the decline, the overwhelming acceptance of the automobile was probably the single most powerful shift in transportation patterns. Automobiles and airplanes symbolized speed and convenience while railroads suggested an archaic and unprogressive system redolent of the 19th century. The railroads, rather than accentuate the advantages of comfort and luxury the competition could not offer, generally gave up and retreated into the relatively safe and profitable business of hauling freight.

Amtrak was founded in 1971 on the assumption that remaining pasenger trains would not survive the 1970s unless they were consolidated into a single corporate entity, in this case a government-

owned corporation based in downtown Washington, D.C. and charged with maintaining and expanding the nation's network of passenger trains. Essentially Amtrak is the application of centralization to trains previously owned by regional railroads. There was a seemingly minor but telling result of this change. Many of the name trains, while still being operated by private railroads, were maintained to fairly high standards, much to the railroads' credit considering they were often losing money. One standard so maintained was the quality of the food. Not only was it often good but it was regionally flavored with dishes such as shrimp casserole on the Gulf Coast train to New Orleans. Amtrak changed all that. It standardized the menu nationwide. Imagine how demoralizing that would be for a cook who'd proudly produced real home-style cooking for decades of diner patrons. But it saved money, never mind the possibility that the same cook probably demands higher wages now to offset the loss of creativity.

Despite such cost-cutting moves, despite aging equipment, despite railroads that often treat Amtrak as a nuisance, and despite the inherent difficulties of motivating a bureaucracy, Amtrak has succeeded in increasing ridership on almost all its routes. In fact, demand for train space exceeds supply. However, Amtrak's losses have climbed steadily to where they now hover around $600 million a year – an amount that caused a flurry of Congressional scrutiny and resulted in a 20% cutback in Amtrak service. That vote took place in the fall of 1979. President Carter had recommended a 43% cutback, but consumer activist groups and members of Congress successfully lobbied to minimize the cutback on the basis that we cannot afford to lose passenger trains in the face of a worsening energy crisis. The cutback in Amtrak service is all the more remarkable considering that the administration was trying to save a measly $300 million while continuing to spend over $2 *billion* a year just to support the air traffic control network. The popular notions that railroads are unprofitable and require subsidies and that airlines are privately owned and profitable are both questionable assumptions.

It is widely known that passenger trains are the most energy efficient and environmentally benign form of fast transportation we've developed. They are also the safest and the least costly in terms of medical bills and insurance plans. Virtually every country in the world recognizes these facts and places a high premium on modern passenger trains. But not the United States. Why this odd anomaly? Obviously it is partly due to the animosity between government and railroads stemming from historical events, and partly due to the sheer stodginess of the railroads, but deeper than that there are causes rooted in the American psyche – a pursuit of individualism at all cost, as represented by the automobile's dominance, and a rigid adherence to personal freedom regardless of its consequences.

Amtrak does not benefit any large or particularly wealthy group, with one exception – in the Washington, D.C. to Boston corridor serving the dense Atlantic seaboard megalopolis. There high-speed metroliners operate frequently and compete with shuttle aircraft. Many business and political leaders regularly ride the metroliners that are rarely seen on other rail routes. Back in the late '60s, during a brief rush of interest in intercity rail transport, one of the few real gainers were the metroliners – airplane style railcars with high acceleration motors and sleek interiors almost entirely destined for the Washington-New York commute run. Comparatively little was spent on other similar commute runs – Chicago-Minneapolis, Los Angeles-San Francisco, Portland-Seattle – or on longer distance service. Where the money was spent and the fact that Amtrak's long-distance trains were cut back is a visible demonstration of where the corporate values lie. Like most of us, corporate and government leaders can only perceive and serve their own social milieu and the values it holds.

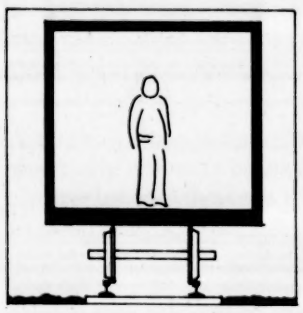
Rail transportation now in the United States is rigidly centralized, devoid of diversity, ignorant of innovation, and inextricably bound into the corporate, union, and government bureaucracies.

SCALE

When the railroad was owned by a few stockholders in the small town, the shopman went to the parts room which was like an attic and scrounged around for a nut to fit a bolt that held on a door handle.

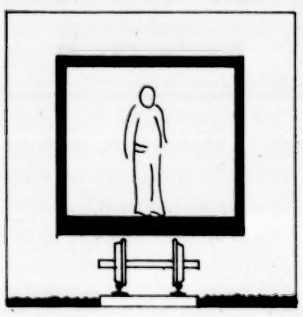
When the railroad was owned by a larger corporation from the neighboring town, the shopman couldn't find the part in the parts room because it had been cleaned and organized, and all the junk had been thrown out. So the shopman wrote a purchase order, went to the hardware store, and bought the nut.

When the railroad was owned by a still larger corporation based in a distant city, the shopman had to get a special nut made especially for the special door handle. He talked to the foreman. They spent half an hour filling out requisition forms to order ten nuts. After two weeks the parts came by mail. For two weeks the door wasn't fixed, the railcar wasn't used. After three weeks, fifteen pieces of paper, three phone calls and the involvement of seven people, the nut slid on the bolt.



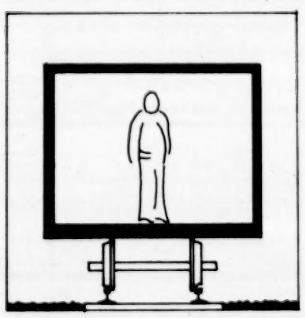
Standard U.S.

Freight cars average about 10 feet wide and 15 feet high from top of rails. Their length varies from 60 to 90 feet. Standard gauge used throughout North America is 4' 8½" measured between the rails. Wheels average about 33 inches in diameter. Rail passenger cars are about the same height and width and usually 80 feet long.



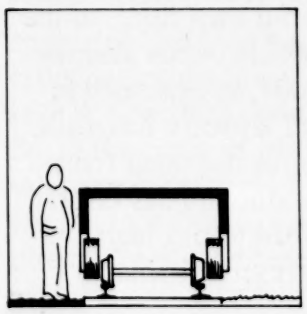
Narrow Gauge

Throughout the world there remain a variety of tracks referred to as narrow gauge. In the United States the Colorado region was once dominated by 3-foot gauge railroads – cheaper to build in mountainous terrain than standard gauge. Cars were usually only 9 - 10 feet wide, 11 high and often less than 50 long. In Maine until the 1930s there was an extensive network of 2-foot gauge railroads whose equipment was even smaller. They seemed to fit the scale of the landscape.



Proposed Lightweight

Substantial economies could be gained by the creation of a lightweight standard – in this case about 10 feet wide, 11 feet off the rail, and under 65 feet in length. This appears to be about the right size for equipment that could be comfortable for long distances while also being capable of negotiating city streets and the tight corners of mountain or branchline conditions.



Auto on rails

To provide scale as well as illustrate the fact that automobiles can, with special wheels, travel on rails.

To expect such an overwhelmingly rigid industry to respond to crisis, to innovate and create is like asking a dying fascist to become a libertarian. In effect the railroads, regulatory agencies, airlines, highway contractors, auto companies, unions, vehicle manufacturers, and legislators are boxed into a corner. Meanwhile the public demonstrates simultaneously both an interest in better public transportation and a continuing commitment to the private car.

Stagecoaches, railroads, and highways all came into being on a local, grassroots level. Each was, in its beginnings, a response to a variety of local needs too diverse and complex to be neatly categorized in mechanistic logic. The systems that evolved grew like vines in the jungle and were just as difficult to trace. This inherently wild, organic, and ultimately quite natural co-evolution between people, their place, and their tools does not lend itself to tight centralized management. Though it may be aided by larger organizations, it must be allowed to flourish with minimum constraints. The widespread tendency to overplan, over-study, and utlimately bureaucratize every development tends to strangle inventiveness and lead to the very kind of congestion we now live in. Like a garden in the fall, this old business of transportation must be substantially plowed under and allowed to rot so as to fertilize new sprouts responding to a new spring.

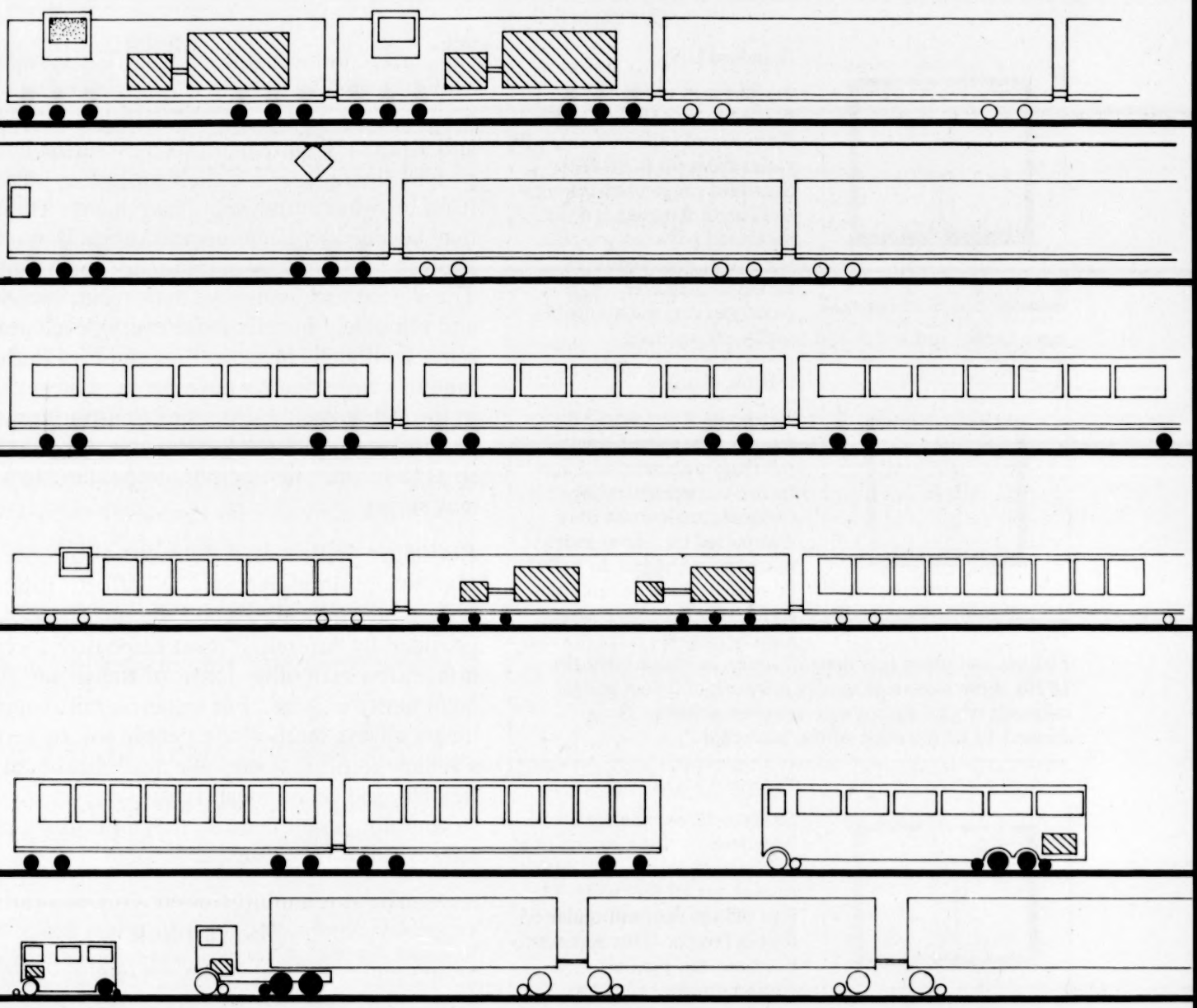
Revitalizing railroads, if done out of broader context, would simply be a wasted effort. Whatever system is developed beyond the prosaic service provided by Amtrak, it must emphasize precise integration with other forms of transit and the community at large. For instance, rail routes no longer always reach where people are, so we need a vehicle to fill that gap. We need short-haul, flexible, and economical transit systems anyway, so why not design them so they optimize a potential revival of rail passenger service?

The van link

South of San Francisco in Santa Clara County, the local bus line recently tried a system called Dial-a-Ride. Using standard 70-passenger buses, they set up a system where riders could telephone a central dispatcher, and tell the operator where they were, where they wanted to go, and when. The dispatcher would then radio the nearest bus informing the driver of the rider's intention. Most of the time the bus would arrive at or near your front door close to your desired departure time and deliver you to or near your planned time and place. It worked. But it worked too well. The local cab company sued on the basis of unfair competition, and the bus company realized it would have to purchase hundreds of expensive buses to make the system work throughout the county. The experiment ceased.

Cab companies, unlike partially subsidized transit companies, are profit making and tend to be fiercely competitive. The profit margins are slim both for individual drivers and cab companies. It appears they responded to the Dial-a-ride experiment more out of competitive rage than intelligence, for it is quite likely that *any* system that drew people away from private cars would benefit them. Once the rider is "out there" without a car they are more likely to take a cab.

POSSIBILITIES ON RAILS (Dark circles indicate driving wheels)



Conventional buses are too large to be an ideal link vehicle and cabs are too small, but *vans* could, with little conversion, provide a workable dial-a-ride service. Citizens Band radios and existing home-scaled computers could be used to provide communication between dispatcher and drivers for continuous updating of routes and scheduling. The computer could also handle billing information for regular riders carrying a small credit card.

How would it work? The rider telephones the local dispatcher giving their location and destination. The dispatcher calls the nearest van and, by voice or a combination of voice and telemetry, tells the driver who, where, and when to pick up – including special information such as whether the passenger has packages or luggage, or is blind or crippled. A small dashboard-mounted video screen could illuminate a map of the neighborhood showing optimum and alternate routes, including a wide variety of other rider pickups and destinations. Over a period of months certain repetitive patterns would probably emerge.

Technologically the obstacles are minor. But legally and to some extent socially there is one big roadblock – insurance and liability. Laws and attitudes regarding transport liability are, as in medical malpractice, a tangled web of confused responsibility. We've gone from one extreme, expressed by the phrase "you ride at your own risk," to the other, where the driver or vehicle owner assumes *all* responsibility. This attitude, as expressed in law, insurance premiums, and lawsuits, has made business virtually impossible for the small transport company or owner-operator and has favored large companies who can afford to pay high insurance premiums and court settlements.

Simultaneously this tendency also furthers the trend for large institutions such as insurance companies and hospitals to become, in effect, financial partners in the transportation transaction. They are dependent on the risk-fear syndrome engendered by excessively complex technology and on the errors that inevitably result. Coping with technological errors thus becomes a growth industry based on the belief that we are victims of another's sloppiness or the insanity of the universe. All this further complicates the chain of responsibility, making it ever more difficult to assess the causes of a given error, methods of correction, and hopefully a reduction in the pain of death and injury.

The conventional diesel electric locomotive is usually used in combinations up to 15 units to pull freights up to 150 cars long – sometimes longer with helper units placed back in the train. Passenger trains are similarly powered, only their length rarely exceeds 25 80-foot cars.

A single electric locomotive pulling a train while drawing electricity off an overhead wire. Like diesel-electrics, electric locomotives are regularly used in combinations to pull heavy trains.

The subway or urban commute train has every wheel powered and usually picks up its power from a third rail paralleling the support rails. The advantage of this method, as opposed to a locomotive pulling unpowered cars, is greater acceleration and grade climbing ability due to the larger area of contact by powered wheels.

Proposed lightweight train with remote-controlled locomotive. Advantage of this theoretical system is the use of a power plant that need not be at the front of the train. Thus the nose is freed for passenger lounge space with engineer's cab above. Passengers would walk through the locomotive.

Paired streetcars utilize overhead wire or third rails to energize wheel-mounted motors. Generally they are similar to subways except that they do not usually operate at such high speeds or acceleraton rates. A standard highway bus can be modified to function like a streetcar with the addition of railroad wheels that can be raised and lowered. Such a hybrid could function normally in city streets but greatly increase its efficiency over long distances by riding the rails.

Small vans could be operated on rails with considerable savings in fuel use and wear. A conventional truck-trailer rig could haul many trailers if it operated on rails.

This attitude that someone else is always responsible runs contrary to the potential of smaller-scale, locally-owned, diverse, and responsive transportation. The insurance, legal and regulatory apparatus itself has become a monolithic structure intimidating the lowly individual who dares to take responsibility and start a private enterprise. So, in the name of protecting ourselves from ourselves we have created a system that prevents us from responding to a very real crisis in the most direct, organic, and response-able way.

It is less likely that people who own and drive vans as their means of making a living are going to make painful errors. Compared to a situation where the driver is only an employee and has no direct and real involvement with either the vehicle or its passengers, the van owner-operator is going to *tend* to be more responsive and careful regarding the passenger's needs and more likely to be knowledgeable of the vehicle's working and immediate condition.

A van system is a relatively simple network to establish – assuming some way is found to substantially loosen the regulatory and insurance mess and thus make a van system a profitable and non-subsidized alternative to the car – but vans would only serve us within the 1 - 20 mile range. Beyond that the length of the trip demands a more accommodating mode. Buses can take some of that load and undoubtedly will continue to do so, but nobody seems to love buses, at least not the way they love trains. Besides, trains offer a great deal more flexibility than buses.

Re-connecting connections

Trains, despite Amtrak's efforts, often do not interconnect in space or time with other means of travel. The revitalization of all modes of public transit would benefit by stations that emphasized integrated services. On the neighborhood level this might involve small stations where patrons could wait in safety and warmth for vans and buses, and on the regional level it could justify the restoration of old stations or the construction of new structures.

In San Francisco there exists a typical situation ripe for this kind of development. Downtown, within blocks of a Bay Area Rapid Transit (BART) station and served by the city's streetcar and bus system, is a structure known as the Trans-Bay Terminal. It is a multi-storied Art Deco edifice originally constructed for interurban trains that crossed the Bay Bridge. Now buses perform that function. Within three blocks are railroad spurs laid in the streets to serve a fading warehouse district. Those spurs connect with the main Southern Pacific line only ten blocks away, and that line conveniently passes within a mile of the San Francisco International Airport fifteen miles south (and now undergoing another costly expansion, principally of its parking structures). Existing passenger rail cars are too large to function on sharply curving tracks in city streets, but smaller, lighter, and cheaper rail equipment could be constructed. Track needs to be rebuilt over a few blocks in the city, and a short spur needs to be constructed connecting the airport to the mainline. This situation is quite typical: many urban and suburban regions of the U.S. share such mismatched but close systems. With relatively small investments new connections can be created in a very short time.

One would think that, given the energy situation we're in and the plethora of possibilities inherent in an underutilized railroad network, the railroad owning corporations would be enlivened with a new sense or purpose and innovation. Apparently they are not. They appear to be neither prepared for nor interested in a revival of both passenger and freight service on a large scale.

more →

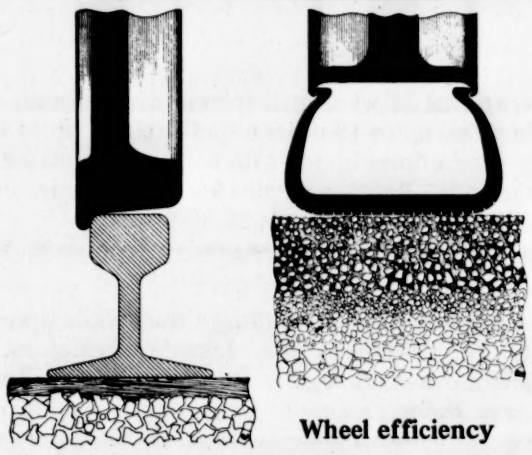
The local maintenance strategy

It is no wonder the average person thinks U.S. railroads are archaic and outmoded despite the fact that many make a profit. One look at the average railroad right of way is sufficient evidence to convince anyone. It is usually a grotesque strip of grease-stained land overgrown with half-dead weeds decorated with garbage. It's hard to believe this trashed-out network is capable of hauling the same traffic volume as a four-lane highway for a fraction the cost in land, fuel, and maintenance.

By contrast the highway network is a marvel of good design and well-managed maintenance. But it may not remain that way for long. Much of it was built between 1955 and 1965. It required an unparalleled bureaucratic army swelled with huge inputs of gas taxes. Alliances between counties, states, and large contracting firms became, and remain, almost as powerful as the military-industrial complex. Their dream of a smoothly integrated national highway network came into being when gas was 25 cents a gallon, and Earth seemed to be a basket of goodies for America to plunder at will.

Recently it has been difficult for this highway building establishment to accept the fact that the highway system is wearing out more rapidly than expected and that reconstruction will be very, very expensive. Asphalt and concrete, especially in the large quantities roads require, are energy intensive materials. It was always assumed that when the highways wore out, just as when any technology wore out, we'd just buy a new one. The highway building establishment, like the public at large, gave little thought to what might happen if the resources ran out or were no longer available on a buyer's market. It appears that time has come.

In thousands of places throughout the country you can stand between a railroad and a highway. While a steady stream of cars and trucks race by, an hour might pass before one train is seen. Railroads are underutilized and highways are over-utilized. Our apparent choices? We can let Amtrak struggle along trying to build a thorough network with little cooperation from the railroads and an ever-increasing budget; or we can nationalize all railroads and exchange the rigid, excessively expensive private bureaucracies of railroad corporations and unions for even more rigid, more expensive government bureaucracies; or we can let the railroads fall apart; or we can let them continue to serve a narrowly defined and exceedingly rich segment of the population. And the highways? We could let them fall apart while we agonize over whether or not to use the remaining oil to maintain smooth roads that would cost us more to drive on.



Wheel efficiency

The essence of the railroad's advantage. Note that the steel wheel is only contacting the rail on a relatively narrow area – about the area of the first joint in the thumb – while the automobile tire contacts the road over a much broader area – at least 25 times more contact area than the railroad. Also the steel wheel on steel rail is inherently less "sticky" than the tire. Given the fact that the rail vehicle is steered by its medium, it does not require a wide swath of material to ride on and instead it operates within a very precise corridor.

RAILROADS

one track can carry the equivalent of a four-lane highway
in weather that would stop a highway
in about a tenth the space
for a fraction of the highway's construction costs

You can't run a train on the highway
but you can run cars, buses, and trucks on rails

Railroad equipment often lasts 30 - 40 years
Buses 10 - 20
Cars? We all know

Railroad tracks tend to gain elevation by fitting the terrain
They could be considered respectful of landscape
Grades are rarely greater than 4%
Highways commonly climb at gradients above 5%

Trains can be powered by any fuel
Trains could be solar powered

On a train: you can walk, watch, talk, eat, read, write, or play
Enjoy dancing, movies, theater and whatever else

Or we could develop methods to maintain and utilize both networks in an integrated fashion and thus, hopefully, reduce highway wear, fuel use, and the highway death rate.

Trains, especially in Europe, are a highly civilized experience involving fine food, excellent views, comfortable seats, people to meet, places to walk, and virtually all manner of passenger accommodation. But we are not likely to see those qualities on U.S. tracks unless the network is freed of its deeply-rooted regulatory and financial confusion. Given even the best of conditions Amtrak could

not possibly sponsor a dramatic increase in ridership simply because its bureaucratic style is not responsive enough. We need to make passenger trains profitable. The first step towards that objective would be the public ownership of the tracks. Simultaneously we need a method of subsidy which makes it obvious, monetarily, which system, rail or road, is most efficient for which purpose.

In California, as in many states, highway design and the management of construction programs is handled by large central offices in the State capital in Sacramento or in Los Angeles, where much of the freeway network exists. Aside from short links here and there, most of the major freeway construction is complete. Now the network requires a maintenance style of management rather than a construction style. Unlike construction, when huge machines are orchestrated in a military-like campaign, maintaining freeways and highways is a smaller scale and more mundane process. Fewer people, smaller machines, and simpler process are involved, and the entire business is inherently local. Already most state highway departments have well-developed regional maintenance stations that regularly work with their county and city counterparts in overall road system maintenance.

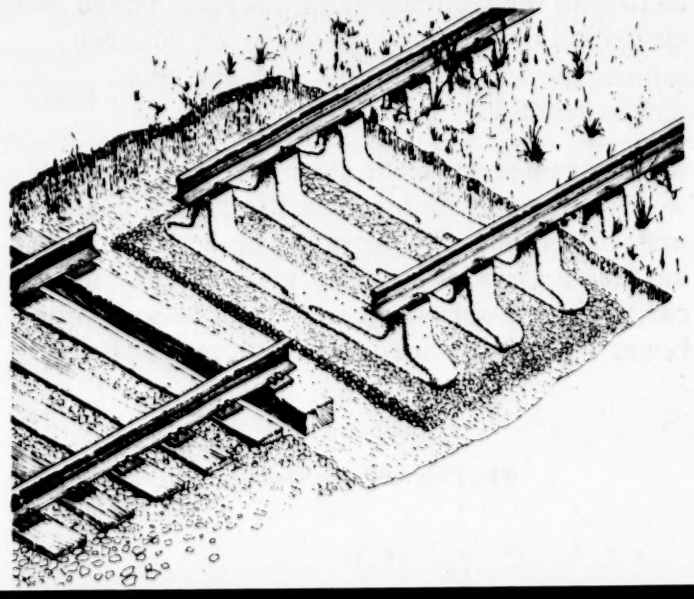
U.S. railroads have long since passed from the heroic period of rapid construction into the dull daily grind of maintenance. Railroads, like highways, are substantially maintained and managed by local crews scattered along the tracks. Tools required for railroad maintenance are not too different from those used on highways. In both operations there are a few specialized devices and a large proportion of common light-weight construction equipment. Similarly, skills are generally simple and there are few tasks that require elaborate training.

What if city, county, and state road crews joined with railroad maintenance crews as a locally-owned public corporation chartered to perform joint maintenance service? In urban areas the corporation could be operated under the city or town government, in rural areas under the county government. If we felt the economic impact of rail and road use directly in understandable local government budgets, would we be inclined to use the two mediums more efficiently?

Money: who would pay and how? Currently road maintenance is paid for by a variety of local, state, and federal tax schemes, such as the gas tax. Fund allocation is not always proportional to traffic volume and is often subject to all kinds of political manipulation occurring far from where road work is to be done. Utilizing new electronic devices, a county or city transportation agency could arrive at accurate figures indicating volume and type of rail and road use. Then, instead of receiving tax monies from a variety of distant centralized sources, they could annually bill local residents for their road-rail use and include a voucher that would allow each taxpayer to subtract road and rail maintenance funds from their tax bill. Road and rail use would then be paid directly by the users within the community where the service is provided, just as we now pay public utility bills.

Local ownership and design

Restoring the rail network through a series of locally-owned companies illustrates, at least conceptually, the potential of a rapid development of rail technology. However, just as the railroads and the government are ponderously slow and seemingly uninterested in such a process, so are the handful of companies that still build railcars in the United States. Most recently the construction of the double-decked, long-distance "Superliners" for Amtrak have demonstrated an industry tendency



Buried Track System

Conventional railroad track at left, proposed buried system at right. The purpose of this design is to reduce noise of passing vehicles, reduce the ecological barrier effect of conventional tracks by allowing space between the track's matrix for small animal and plant life, reduce drainage problems by restoring a soil bed atop the track structure, and generally improve the visual qualities of a railroad.

towards lengthy construction times, cost overruns, and ill-conceived equipment.

In general railroad cars, relative to the load carried, are far less complex than automobiles or airplanes. If we sought an extremely simple railroad passenger car, what might we achieve? A light, extremely efficient, relatively cheap yet safe and comfortable railcar composed of standard materials like steel, aluminum, glass, wood and some plastics, utilizing parts drawn off the shelves of the world's extensive railroad and automotive accessory companies and nuts and bolts available in any hardware store. Using this same process a simple streetcar system could be designed for construction in any community that needs it. Streetcar bodies – minus motors, wheels and other complex parts purchased from companies that specialize in that equipment – could be constructed in a neighborhood auto garage. Carrying this a step further it is even possible to construct a small solar power station to energize the streetcar system.

For the hauling of freight by rail we need not design new equipment as much as concentrate on techniques to utilize what we have more efficiently. An example: for use in track maintenance, railroads already use standard highway trucks modified with small railroad wheels allowing them to travel on either road or rail. This same technology with perhaps some new variations could be used to convert the standard highway truck to lomotive use. The increased efficiency of wheel on rail might allow a typical highway truck tractor to haul up to fifteen trailors instead of two. This would allow one driver with one truck to move trailors long distance by rail and then distribute them piecemeal to final destinations on regional highways. Not only would the truck be doing more work for less fuel, it would be operating on an inherently smoother medium and would thus last longer.

Another example: there is no social or technological reason why a small company could not own and operate a train in the same way an independent trucker owns and operates a single truck. A group of railroad workers could purchase one or two locomotives and a string of freight cars – possibly old equipment in need of restoration – and enter the transportation business as independent contractors. An old caboose could be converted into a rolling office and living space, allowing the operators to conduct business en route. Locomotive operation, switching cars in yards, keeping the books, dealing with shippers, and minor maintenance could all be handled by the owner-operators instead of being divied up among dozens of overly specialized job classifications. The competitiveness that would probably evolve under such a system might well result in a more efficient use of resources – human, energy, and technological.

A network that flows like water

A context for profitable, semi-subsidized, locally responsive and integrated public transportation can be created. We can look upon the energy crisis as a golden opportunity not just to learn to conserve but to drastically reduce and simplify our involvement with technology while simultaneously developing comfortable, indeed fun, alternatives to the ubiquitous use of the automobile. We can create a network that flows like water. What might it be like, say, in 1990?

A wide variety of vans operating in almost every urban and rural community in the country. Vans pulling passenger trailers, vans with bike racks, vans with heavy parcel storage, vans with wheelchair ramps, and even double-decker vans with open tops for neighborhood transport in warmer climates. Commute clubs utilizing vans with refrigerators and small stoves. And vans for charter to carry families or groups to distant parks.

Fewer automobiles on the streets. Many people who don't own a car, rarely use one and when they do they rent one. Spaces once reserved for parking are bike paths and wider sidewalks. There are more people walking and riding bikes. Many city streets are transformed into malls or linear parks. Streets are quieter and less polluted.

More medium-sized buses on more frequent and flexible schedules. Bus stops with small permanent shelters incorporating maps and telephones that are not vandalized because there are almost always people using them.

Old train stations restored and expanded to serve buses, vans, and trains. Stations with tree-sheltered outdoor cafes serving real food and situated so one can watch travelers coming and going. Stations where one can rent a bike or car or plot a trip with the help of a travel agent familiar with the variety of transport options.

New stations built of simple materials and designed to fit into the community. Structures heated and electrified by the sun with platforms between railroad tracks sheltered by trees and vine-covered trellises.

Streetcar lines down the center of busy boulevards with tracks laid in a swath of grass, with trees lining the route providing shade and enriching the atmosphere. Simple, locally built trolley cars safely cruising at no more than 50 miles per hour. Some open-sided, others closed, but all

The author, 14 years old in 1960, aboard the narrow-gauge Denver & Rio Grande Western in Durango, Colorado.

displaying a variety of different body styles and bright color schemes.

From city to city by train. Many to choose from, each owned by a separate company, each expressive of a particular style, but all sharing common mechanical components. A train from Los Angeles to Mexico City owned by Mexicans and displaying their finest service, food, and decoration. A train from San Francisco to New York with luxurious lounge cars, evening shows, and dancing. A ski train with small compartments that become your room while skiing – a portable resort.

A train lower and shorter than conventional equipment but with large windows and clerestories providing a sense of spaciousness and light. Shiny aluminum exterior skin reflecting the sun while it takes on the color of the land it passes through. Interiors with wood trim and soft foam seats covered in richly colored cloth not vinyl. Open platforms at the end of each car that allow one to stand outside and breathe the passing air.

A lounge car at the front of the train with a glass nose where passengers can peruse the landscape rushing towards them. Coaches with seats curving out from the walls to define five-to-eight person seating areas facing huge windows. Dining cars with high-backed wooden booths and flowers on every table. Baggage cars where a bike, a canoe, or just your luggage can be checked. A locomotive in the train's center remotely operated by drivers at either end. A glass-sided corridor down one side of it so passengers can observe the machinery while passing through the train. Glassed-roof observation cars where a passenger can view the scenery or sunbathe.

The track: buried concrete crossties with only short piers extending above the ground to support the rails, thus returning large areas of dead ground to oxygen-producing and life-supporting soil. Tracks laid on old right-of-ways, new tracks replacing old tracks, and railroad yards – all rails in wild grass.

In Arizona the dilapidated and unused railroad line to the South Rim of the Grand Canyon is rebuilt, and the paralleling highway is removed. Trains seem to streak through sage in silver rails inches above the sand. Along the canyon's rim people walk and ride bikes or horses on a network of trails where the roads were. In Yosemite and Yellowstone National Parks a rail system replaces the highway network, and it is discovered how the presence of the automobile had muted our experience of the wilderness.

Typically, a little-used branch line north of San Francisco that passed practically every Napa Valley winery is restored by community groups and winerys interested in reviving the wine-tasting tour business, a custom that faded as the price of gas climbed. Solar-electric trains allow not only a tour from winery to winery but meals and entertainment along the way.

Throughout the country the public transportation system has revived. Since fewer people drive cars, delivery services flourish – milk trucks, grocery delivery vans, roving vegetable vendors, and package delivery trucks are once again a common sight. On the rails medical emergency service trains are operated around the country to cope with local disasters. Museum trains bring cultural events into rural communities. Traveling theaters and circuses evolve regionally, and universities operate rolling classrooms and laboratories, allowing students to study the culture of a place while living there.

By 1990 we have decreased our auto use by almost half. We use less than 50% of the energy now used for transportation. Many electric railroads, mopeds, and automobiles are solar powered, and horses are a common form of rural transportation. Fewer people are killed or injured in auto crashes, and we have a more integrated, flexible, and efficient transportation for less money, energy and time. We have a transportation technology that fits our lives and the life of Earth. ■

Confessions of an Energy Professional

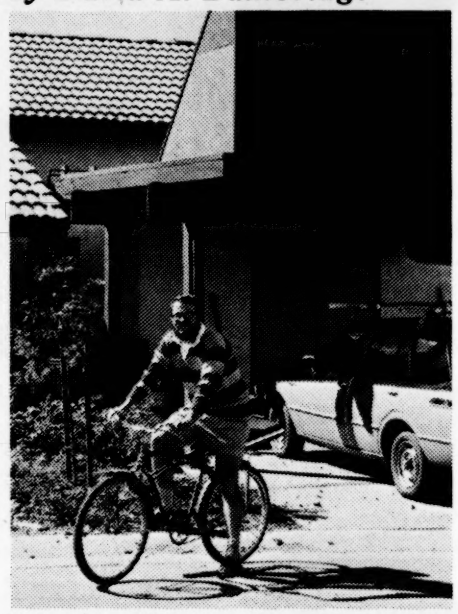
by David A. Bainbridge

This may seem to be an unlikely and awkward confession for a passive solar consultant, and I make it only in the hope that the public confession of my energy addiction will cause other solar and alternative technology practitioners to more closely examine their own lifestyles.

I have always felt fairly "righteous" about my energy consumption. I currently live in a passive solar home, with wood backup, and a passive solar hot water heater. I have chosen appliances carefully and have achieved a reasonably energy responsible home. The figure below profiles my energy use for 1978. The following table compares my energy use to that of the solar subdivision I live in, the city of Davis, and surrounding cities.

Not too bad, I thought. If everyone in the county were doing as well, we would save more than a quadrillion BTUs per year. This would save the equivalent of 100 million barrels of oil per year and would enable the country to close all its nuclear plants — forever.

However, life is never so simple. As I was working on the book describing the Village Homes solar subdivision (**Village Homes Solar House Design** *from Rodale), I decided to run up my own energy budget — including not only housing, but also transportation. The result was surprising and more than a little embarrassing.*



The author on his new net energy bottom line.

During 1978 I drove over 25,000 miles, somewhat above average. Of this over 80% was work related and the other 20% was used primarily to get to recreational activities, such as canoeing, backpacking, and bicycling. These miles were driven in a Toyota station wagon which typically gets 30 mpg or more. Using Eric Hist's net energy analysis for subcompact auto transport, my auto recreation *alone used 20 million BTU — or almost twice my home energy use.*

My work-related auto *travel, at 80 million BTU, was over six times more than my home use. Just for fun I decided to try a net energy calculation for a typical consulting job. As shown below the net energy picture still looks pretty good. But it certainly affects the energy payback of projects and should probably be considered more often in the future (along with material energy cost!).*

A typical consulting job: A quick cut

Trip distance, 150 mi. radius = energy cost:

6×10^5 BTU

House revision, improvements in passive system = energy savings:

1×10^6 BTU/year

20×10^6 BTU in 20 yr.

balance + 19.4×10^6 BTU

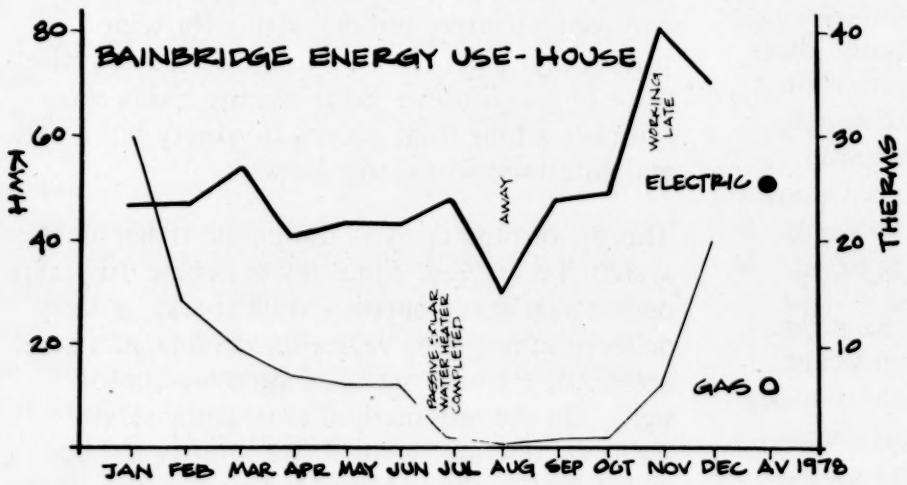
Perhaps the most extravagant energy use was for airplane travel, *work related again, which totalled over 4,000 miles. Using Eric Hirst's figures again for net energy use per passenger mile, this accounted for 48 million BTU, or over four times my home energy use for the year. Auggh!*

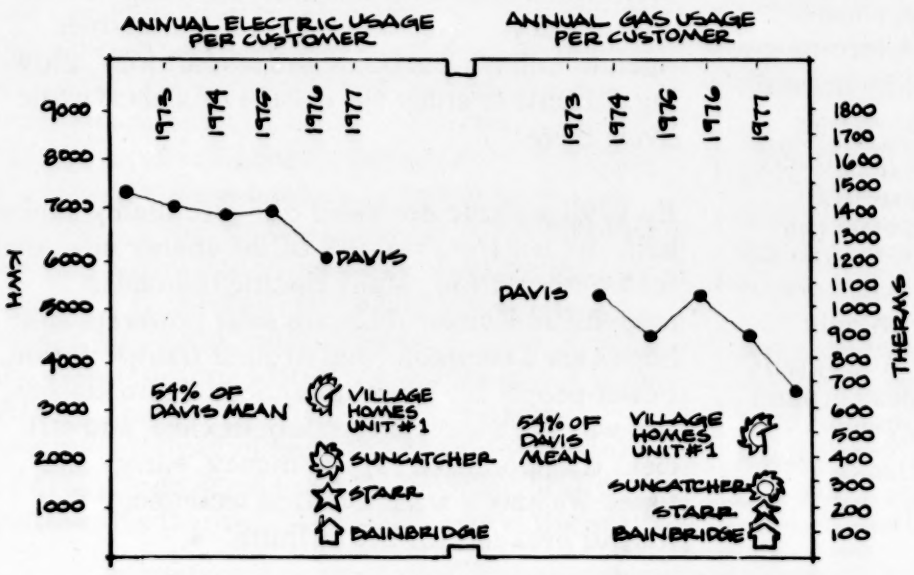
I was surprised by the magnitude of my energy addiction and am currently attempting withdrawal by revising my lifestyle to minimize this antisocial behavior. My revised program will include in the near term, increased use of the mail and telephone for consulting, increased use of my bicycle. I'll be building a bicycle trailer to help transfer shipments of* **The Passive Solar Catalog** *from my house to the Post Office, and increased reliance on trains and bicycles for distant trips.*

I am also in the process of planning a conversion to ethanol for local (200 mi. radius) trips. Availability of fuel has been the stumbling block to date — but I hope to be reporting back with some operating experience later this year. The development of a waste-based ethanol fuel economy seems vitally important for America's survival.

A simple case, "Guilty, of over-energy consumption by reason of inattention." I have put myself on probation, promise to do better, and hope that you, having heard my confession will take the time to . . . ■

*Has anyone analyzed the time energy cost of telephoning versus correspondence versus everything else? —SB





Reel Change

The ever-growing pile of Appropriate Technology films has some good ones and some notable turkeys but how do you tell which is which from a catalog? This booklet offers reviews of many of the available films. The reviews do the deed alright, and the poor films are subjected to some of the most scathing criticism imaginable, which is fun. A much-needed service well accomplished.
—J. Baldwin

Reel Change
(A Guide to Films on Appropriate Technology)
Diane Gary and Larry Hott
1979; 55 pp.

$3.70 postpaid from:

Friends of the Earth
124 Spear Street
San Francisco, CA 94105

King Zog and the Energy Crunch

19 minutes

Terrible! The Air Conditioning Industry cooked up this puppet show that purports in the catalog description to give helpful, energy-saving hints to homeowners. Instead it gives an embarrassingly sexist, juvenile pitch for air conditioning. Avoid it at all costs.

●

Solar Energy - The Great Adventure

27½ minutes 1979

What happens when the Department of Energy, the Environmental Protection Agency and the Defense Civil Preparedness Agency get together? A great film! Really! The Defense Department thinks that decentralized energy production can help protect us in time of disaster. The EPA thinks that small-scale solar technologies may be light on pollution. The DOE, with a new a.t. program and an active consumer affairs office, was the major force behind this production.

The film grew out of the government's Domestic Policy Review of solar energy in the summer of 1978. A series of public hearings were held around the country and more than 3,000 people testified. Of these, eight were selected to be featured in the film. Its major message is that there is a lot happening in small-scale solar technologies and at the community level.

Wind, biomass, solar heating and other technologies are illustrated on-site by the individuals who designed and built them. Though the interviews are short, they do get into the specifics of the projects. They also convey the character of the designer/activists. The film leaves you with a feeling that you, too, can get involved in local activities because the technologies shown are all community based and the people are all inviting.

There is an interview with a bank executive, and three others with successful entrepreneurs who produce and market windmills, solar systems and concentrated wood pellets. The focus, though, is on integrated systems — a renovated barge which floats off the Seattle coast and serves as an educational demonstration site for children and young adults; an energy self-sufficient farm in Missouri; a minority community-based solar manufacturing and installation project in California; and an energy self-help project in the heart of New York City — all give a lasting impression of people working with people and technologies which work together as whole systems.

Another interesting point made by the film is that the government is not necessarily in the lead in the a.t. field. The people interviewed can be considered "experts," and most of their projects are conducted without any public funds.

Throughout the film we keep coming back to the narrator, Eddie Albert. One wonders whether his experience on Green Acres is enough to give him credibility in the solar field. Well, apparently the answer is yes. He comes across as genuine and, in fact, he participated in the solar hearings, himself, over the summer.

This film, in all, is one of the best introductory films we have seen on a.t. and small-scale solar systems. We highly recommend it for environmental, a.t. and community groups, for schools, fairs or any occasion. It is very personal, positive and broad ranging. See it for yourself.

Rental:
Office of Consumer Affairs Room 8G-082, Forrestal Bldg.
U.S. Dept. of Energy Washington, D.C. 20585

Appropriate Technology Directory

A compendium of appropriate technology organizations all over the world, listed by country. Names, phone numbers, addresses, and a description of the outfit, its facilities, and focus. This might also serve as a way of finding people of like mind who'd welcome you in your world travels. This directory has been needed for a long time and it comes with forms so you can add to it for the next edition. *—J. Baldwin*

Appropriate Technology Directory
Nicolas Jéquier
1979; 360 pp.
$22.50 postpaid from:

OECD Publications and Information Center
Suite 1207
1750 Pennsylvania Ave. N.W.
Washington, D.C. 20006

A.T. Times

Published by "NCAT" (National Center for Appropriate Technology) this paper is solid news. The first issue features an article by Amory Lovins, and a good discussion of alcohol production from a farmer's standpoint. Looks like a worthwhile journal, concentrating mostly on projects involving low-income neighborhoods and other less glamorous but nonetheless vital aspects of A.T. As long as they refrain from competing with existing publications, I wish them luck. *—J. Baldwin*

A.T. Times
(A Journal of Appropriate Technology)
Bill Kovarik, Ed.

$10 /12 issues from:

NCAT
P.O. Box 3838
Butte, MT 59701

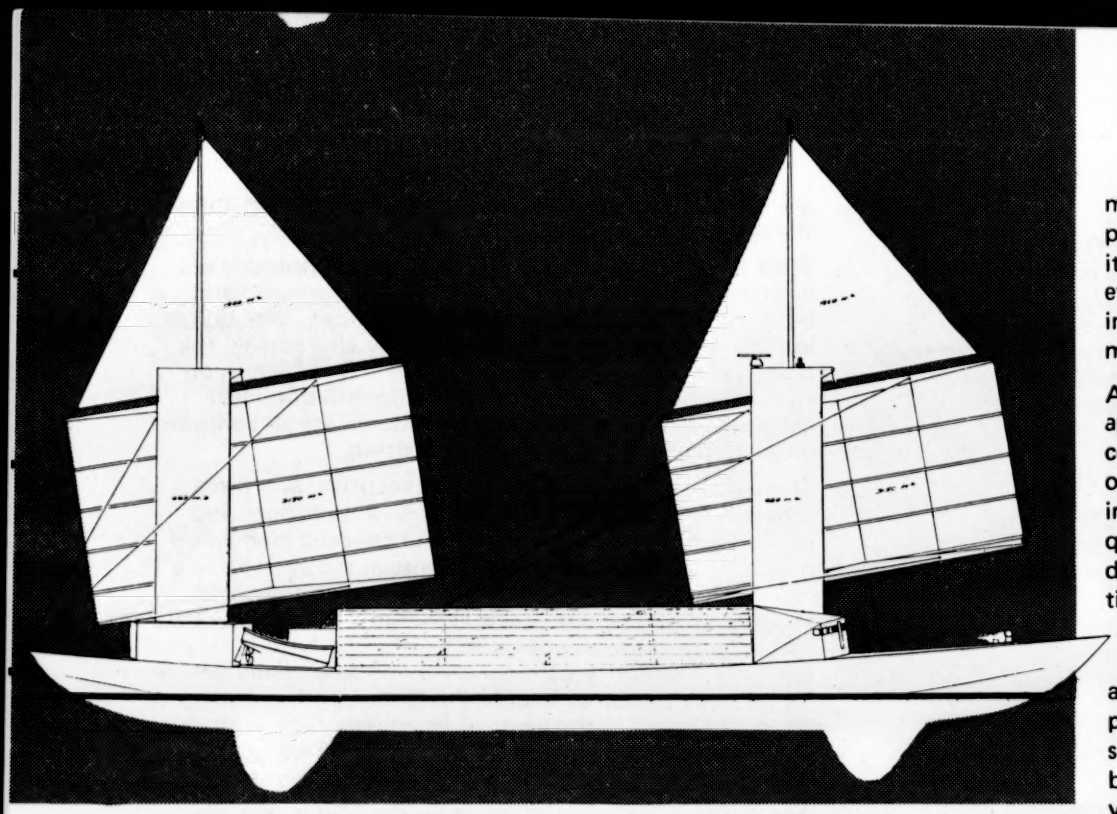
Reaching Up, Reaching Out

Though billed as a guide for organizing solar events, this book might well serve as a guide for organizing all sorts of things. The guidelines are certainly the result of experience and should make disaster much less likely. There's nothing quite so non-credible as an ineptly-run event, and since credibility is one of the main things we're trying to accomplish, good organization is very important. A relatively smooth operation also helps prevent burnout of the organizers. That's you. The book includes many suggestions for effective events, lists local organizations that might prove useful as allies, and has a good bibliography. Nicely turned out. *—J. Baldwin*

Reaching Up, Reaching Out
(A Guide to Organizing Local Solar Events)
R. Vories, C. Young, R. Snyder, N. Carlisle
1979; 208 pp.

$6 postpaid from:

Supt. of Documents
U.S. Gov't. Printing Office
Washington, D.C. 20402
or Whole Earth Household Store



The *Margaret Mead* - 210 feet.

Practical Sail Cargo Economics

by Philip C. Bolger

The last two issues of **CQ** *have printed John Todd's vision of Ocean Arks, J. Baldwin's report on testing a 50-ft. model ocean ark, and remarks by Todd and by the designer Phil Bolger.*

One Buzzard's Bay local who observed the 50-ft. model trials wrote to us:

> "Regional opinion is that *Nancy Jack* is a howling failure, Phil Bolger (especially after his ass-covering reply in **CoEvolution**) is a flaming asshole, and Herr Todd is a gullible sucker. No one but old canoe whitewater guides in strange knit hats *[reference to Baldwin]* would cross the bay in the sumbitch: it's a paper brig, spawned by a paper farm."

Here's Phil Bolger's fuller explanation – a chapter from his new book **Different Boats**, *due out from International Marine late in 1980. –SB*

Yacht designers all tend to have the same kind of inferiority complex that other entertainers do, the "only a clown" sensation that seems to be the reason actors are apt to make such fools of themselves in politics. With us the usual effect is a yen to design commercial boats, something that'll contribute to the world's wealth instead of dissipating it.

A dragger and a couple of gill-netters cured me of looking for such commissions. Nothing radical can be tolerated, and in the usual frame of reference a bad design is practically as good as a good one, which is probably just as it should be.

Another thing a yacht designer can do to justify his existence is to make studies for commercial sailing ships. I did one, privately and minutely funded, for a coal carrier to supply small coastal towns. I didn't have to go through the usual computer garbage-in garbage-out process to see that it wouldn't work; that is, it wasn't an optimum investment. I think Adam Smith was one of the greatest men that ever lived, and **The Wealth of Nations** teaches me that if you're trying to make a social contribution, you'll make everybody poorer in the long run if you try to do it in a way that won't pay a fair return on the investment.

I don't know what kind of garbage is getting cranked into computers, but every time I look at commercial sail I get the answer that it takes two or more sailing ships to do the work of one modest motorship. No sailing ship proposal I've seen looks to me as though it showed any promise of being an efficient allocation of resources. An improved coal-burning steamer would make more sense, perhaps.

A good many people don't seem to appreciate that the high speeds and consequent high fuel consumption of contemporary cargo ships aren't intended to deliver the cargoes quickly, but to enable them to deliver more cargoes over the lifetime of the vessel. A ship earns her way by the cargo, but her running costs, from crew pay to depreciation, add up by the day. If using wind power halves the number of cargoes she can deliver, the "free" wind will be some of the most expensive power you could look at.

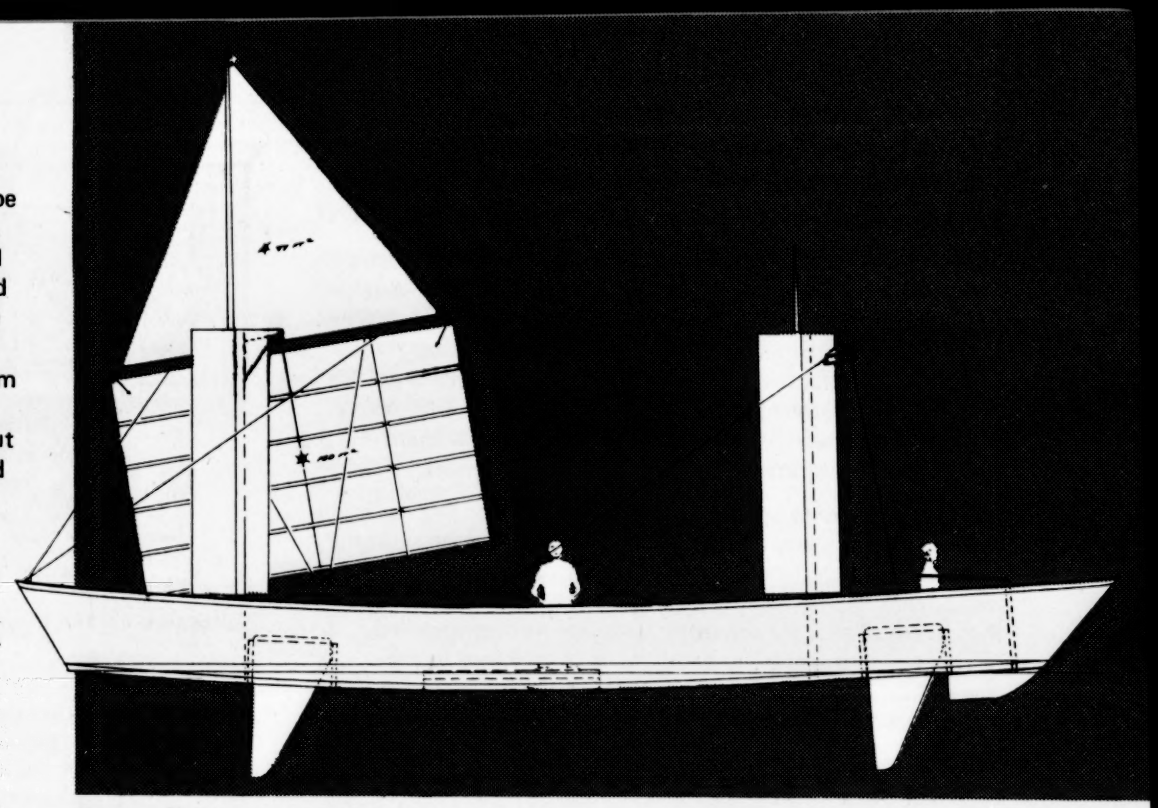
I've long thought one way to break out of the whole problem of the cost of sea transportation would be to use the ships as housing. It seems to me that a thousand-foot tanker could perfectly well be home to a complete town. A company town, of course, with one industry, operating the ship. If her crew needed no homes ashore, and all the members of a family had paying work on board, all the resources (I'm avoiding the use of "money" because some seem to think that means something different), all the resources now devoted to schools, houses, markets, theaters, police, and firefighting ashore, for the shore homes of the crew, could be spent in the ship. She would in effect be selling services and collecting rents day in and day out, without any diminution of her ability to deliver cargoes. In fact, her efficiency might be improved. Her ultimate earnings would still be from delivering cargoes, however, so the value of speed would be no less important.

I've also thought that sails might be used in conjunction with power, on the theory that she could have a cheap rig and a small crew because the engine would replace light-weather sails and maneuvering sails, and a small and economical power plant because the sails would supplement it in heavy weather. One factor in the design of my own *Resolution* was a desire to get some experience in this direction, with, so far, interesting but inconclusive results. The experiment in any case doesn't address the problem of utilization.

However all this may be, John Todd thought of another way to evade the inefficiency of sea time. He knew of fish and plants which are common and cheap in certain places, up the Amazon River, for instance, but which are rare and valuable elsewhere, say in Japan. Some of them need a

period of tending, to mature and to be tested for infestation and infection. For this they need an aquarium and greenhouse somewhere, isolated and controlled. He's experienced in the isolation and control methods. It occurred to him that if the aquarium and the greenhouse were moved along gently over the sea throughout the isolation period, you might find that your transportation costs had practically vanished. The seagoing greenhouse might not cost more than one on land at either end, and since there would be nothing to be gained by moving it fast, the power of the wind might be a genuinely efficient way to move it.

I came up with the proposal drawings here. This small ship would only be a test model though John's figures suggest that it can pay a fair return on the investment if it trades in luxury articles. The directors of his company authorized a 50-foot test model to get a line on the behavior of the rig, which I designed and Peter Duff built in about three weeks, most of the time and money going into the rig. The 50' x 9' hull was assembled in one day out of thirty-four sheets of ½" x 4' x 8' AC plywood. It's flimsy, but a lot more convincing than a computer study and probably costs less, to wit, about $10,000 plus some volunteer labor.



The *Nancy Jack* - 50 feet.

Nancy Jack is no clipper. I'm having to argue steadily for my position that she's a mobile raft with minimum performance. If she had a yacht-like performance I'd take it to be a sign that her rig ought to be further reduced and simplified. I'd like to build a clipper, too. It'd be great fun. But I'd like still better to help with something that might influence history; specifically, to help extend the period in which human civilization can be maintained on this planet and thereby improve the chances of establishing civilization out in space, independent of planets, where I believe it ultimately belongs.

The 210-foot ocean ark *Margaret Mead* will need steerage way and some windward capability to move the flora and fauna and to approach coasts with reasonable safety in various weather conditions. How long she takes is of no consequence within certain limits. If she needs more speed, she shouldn't be a sailing ship, I'm convinced. The fact that in ideal conditions she can run at fifteen knots or more is an incidental bonus of other requirements, mainly the fact that her cargoes are very light for their bulk.

For leisurely intercontinental passages she has a short, fail-safe square rig. The wing-masts' function is to reduce the wind resistance and maintenance costs of the bulky cantilevered lower masts. I hoped they would also give her steerage way, reaching, with her sails furled. Initial tests weren't promising for this last, and they're the most dubious part of the design except possibly for the integrity of the greenhouse in a gale at sea. This last is not my department; consultants seem to think it can be built strong enough.

With the widely-spaced tandem centerboards, she can only be turned sharply by handling the boards. I had her fitted with a bow rudder because although for windward work it's no more effective against the resistance of the adjacent fixed board than a stern rudder would be, off the wind she can run with her bow centerboard wholly raised and the bow rudder will then give her precise and powerful steering through a wide arc. Moreover, a broach begins when a vessel buries her bow in a following sea, when a stern rudder might be in the air, but a bow rudder is most effective.

At this writing, *Nancy Jack* is up for the winter. She was launched in November and the few trials were short and hectic before Buzzard's Bay got too cold to be safe in such a machine.

The water ballast, which some were skeptical about despite the demonstration in *Triad* and the obviousness (the initial stability is that of the unflooded portion plus inertia, and the ultimate stability is augmented by whatever portion of the ballast tanks is raised above the waterline in a knockdown), is of course effective. Her windward capability is apparent though modest and much hindered by my unwise decision to try to sail her without yards on the bottoms of the courses. These sails need precise adjustment to draw well and the initial gear has too little mechanical advantage close-hauled, when the stress on the weather braces proves to be very heavy. There must be a better study of brace angles and brace winches before she goes back into commission.

With both daggerboards all the way down she has more weather helm in a fair breeze than the rudder can overcome, and as in any bowsteering boat she should carry lee helm normally. The lateral plane proportions will be changed accordingly, in *Nancy Jack* simply by making a deeper daggerboard for the stern.

Subject to further trial, it seems possible that she has enough windward capability to spare to dispense with the curved yards as an unnecessary expense and complication. Straight yards will be tried on the feet of the sails.

The long yard cranes give no trouble in *Nancy Jack*. I'm still troubled about them in the *Mead* design, and I want advice on it by a much better qualitative stress merchant than myself. A good aerodynamicist must check the wing-mast design which I suspect is far from optimum.

All this is minor. The crucial point is whether John Todd has his figures right on the relative values of the cargoes and on the techniques for managing them. If he proves to be right, the design of the ship itself doesn't have to be very good. That is precisely why I'm interested, and why I see the project with dawning hope. ■

Box 428, Sausalito, CA 94965

Old Houses

At times it seems the author of this book has missed his calling – he should have been a country preacher. But when the advice is this detailed and the technical information so well presented, the moralistic tone is no intrusion – in fact it adds to the richness. There is advice on country etiquette, how to pace a project so you don't burn out, and sexual politics, all with a nice Vermont flavor from an author who has been there himself.

If the illustrations and photos were as good as the text, this would be a great book. The photos are, with a single exception, uncaptioned and only fair. The line illustrations are plentiful and detailed and terrible – I suspect they were drawn by someone who has not remodelled. If you were to stack the cribbing as it is drawn in the chapter on foundations, the house you are jacking up could come crashing down on top of you. Fair warning.

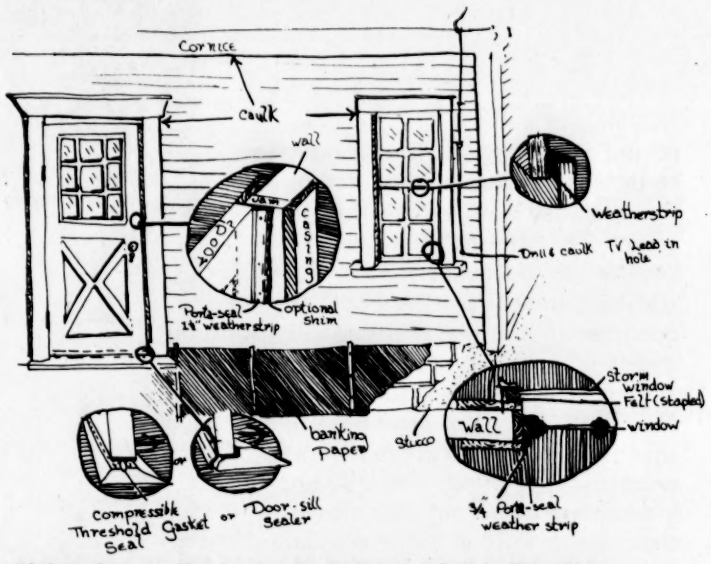
After an excellent list of things to look out for in an old rural house, Nash assumes you end up buying the old junker anyway. Often, as in the author's case, it is all that can be afforded. He explains how to remodel an old house from foundation to roof, without glossing over details or ignoring the tremendous amount of hard work involved. Here you can find the remodelling how-to that most carpentry books about new construction leave out. It includes a fine annotated bibliography. –Richard Nilsen

Old Houses
(A Rebuilder's Manual)
George Nash
1980; 366 pp.

$12.95 postpaid from:

Prentice-Hall, Inc.
Box 500
Englewood Cliffs, NJ 07632

or Whole Earth
Household Store



Tightening up the house to prevent wind infiltration.

•

. . . a house without tight walls is little better than an open shed. You may as well insulate the walls with dollar bills to save on heat.

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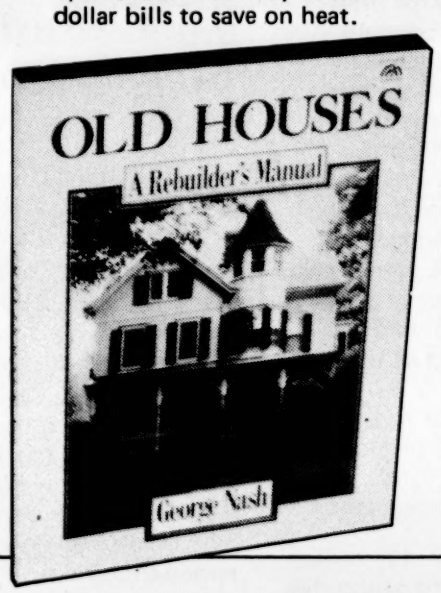


Try to avoid passing out the beer before the work is well advanced however. The results might not shed water.

•

Many a marriage, many a self-image, have run aground on the rocks of rebuilding. All too often the rebuilder is caught in a whirlpool of obsession, the work at hand becomes more important than the reason it is being done.

The Integral Urban House

Like the Farallones Institute's Integral Urban House in Berkeley, CA, this fat book offers a basic education in the good stuff: gardening without chemicals, energy saving, solar retrofits, composting, grey water management, etc. If you've elected to be an urban citizen and not flee to the country, you'll need to know much of what is presented here. The house has given many thousands of people their first look at real people doing all the "alternative" things so often seen in the media but so rarely seen in the everyday life of most of us. The book serves in much the same way but in more detail: offering in addition to advice, a number of working plans for such things as windowbox greenhouselets. A good bibliography will serve those who desire more detailed information. The house and the book share a lack of tight economic discussion and largely ignore political aspects of the project; that's what's being worked on now.

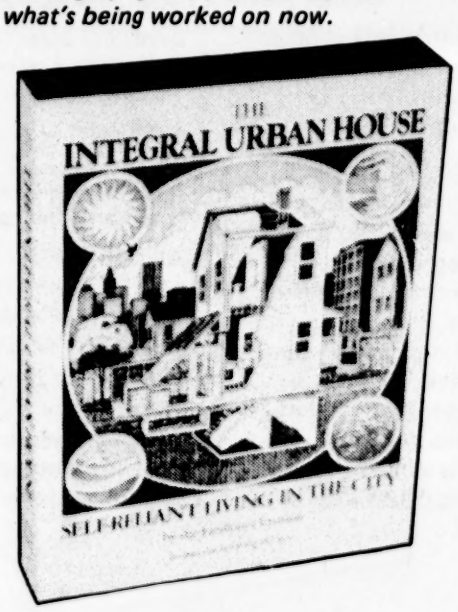
–J. Baldwin

The Integral Urban House
(Self-Reliant Living in the City)
The Farallones Institute Staff
1979; 494 pp.

$12.95
postpaid from:

Sierra Club Books
Box 7959
San Francisco,
CA 94120

or Whole Earth
Household Store



Electric blankets use about 175 to 200 watts on an intermittent basis, and using them – as opposed to heating the entire house for the purpose of keeping the bed warm – can save a great deal of energy. A relatively low house temperature setting of, say, 60 degrees can be made tolerable by an electric blanket with a lightweight insulated cover. The idea is to get the heat to where it is needed. If you are going to purchase one of these appliances, get the best model available. (Check the ratings given by consumer testing services such as Consumers Unions.) Safety is an important consideration in selecting any electrical appliance, and careful shopping is therefore vital.

The shock of getting out of bed into the cold to go to the bathroom can be offset by keeping a potty or watering can near the bed or by the use of spot heaters where needed. Again the strategy is to focus on the heat needs rather than to heat the entire house.

•

A central concept used in changing social institutions is the necessity to draw the boundary around enough of a system to insure that the problem can feasibly be solved within it. Two of us (the Olkowskis) learned this technique initially in the process of developing municipal pest-management programs designed to reduce pesticide use. As long as the vegetation-management people focused only on the bug and the plant the problem often seemed unsolvable without synthetic chemical tools. The point was to enlarge the boundary to include these factors: natural enemies of the pest insects; fertilizing, watering, and other techniques; other species of plants and their management, the union's concern for safer working conditions; citizen's efforts to reduce medical expenses resulting from ailments caused by toxic materials in the environment. When these factors were identified as part of the pest-management system, many new management strategies as well as sociopolitical goals made possible solutions that were not previously obvious.

Kit Houses By Mail

Somewhere between the unaffordable dream and the entirely self-built abode there's a middle ground: the kit. There are a lot of different kinds. Some are simple and some are complex. Some come with instructions and some come with instructors. This book doesn't pretend to present all available kits, but rather shows a selection. The text is unusually free of catalog purple prose and seems to be acceptably realistic about the money involved. (There is money involved; more than you might hope). I found the book to be the best overall introduction to kit houses I've seen. It covers the field well – floor plans, prices, photos and descriptions of log cabins, domes, shacks (oops, cabins), all the way through $100,000 palaces. Easily read too. It would be more useful in paperback at less cost though.

- J. Baldwin

Kit Houses By Mail
Brad McDole and
Chris Jerome
1979; 206 pp.
$14.95 postpaid from:

The Stonesong Press
Grosset & Dunlap, Inc.
51 Madison Ave.
New York, NY 10010
or Whole Earth
Household Store

The appeal of a kit to most buyers is that it might save them money. Just looking at the price lists for the kits can create euphoric expectations. You see an elaborate 2,000-square-foot barn for $20,000 and you figure $10 a square foot, a number that has not been heard around construction sites since the late 1950s. Labor won't add much to that, especially if you bring in the family, friends, and neighbors. The rest of the materials you can get on sale or at the salvage yard. The finished house shouldn't cost more than $30,000, or $35,000 at the most. At today's prices that's a house at a 50% discount.

Such calculations are as common as they are improbable. You can save money with house kits, but it is unlikely that you will save anywhere near 50%. The cost of the kit itself, appealing as it looks alone in a booklet, represents only 25% to 50% of the cost of the finished house. How carefully you can estimate that final cost will determine the extent of your pleasure or your dismay.

Wood Heat Safety

Jay Shelton was among the first to do comparative testing of wood stoves and must be considered an expert of experts. In this detailed, very specific book, he considers virtually every detail (including water heating). It's a good thing he does too; the attitude of energy independence that has grown along with the increasing popularity of wood heat has also brought forth a disregard for hazard that often approaches the foolhardy. I've been in homes recently that had installations so flagrantly unsafe that I wouldn't spend the night. An added bonus to Mr. Shelton's recommendations is that he mostly refrains from scary war stories and guilt-inducing admonitions. It's just the facts you need to know, and no more or less. A commendably good job in every way: you needn't wait for a better one to come along. *–J. Baldwin*

Wood Heat Safety
Jay W. Shelton
1979; 165 pp.
$8.95 postpaid from:

Garden Way Publishing Co.
Charlotte, VT 05545
or Whole Earth
Household Store

The "smoke-shadow" of a small girl who died of asphyxiation along with two sisters, a brother and her mother. Such accidents are much less likely in homes with smoke detectors.

•

My personal preference, not considering cost or convenience of installation in an existing house, is an interior masonry chimney with all its walls exposed to the living spaces. By trying to avoid smoldering fires I manage to avoid much creosote buildup, and the exposed masonry contributes considerable heat. However I have installed some prefabricated metal chimneys in my homes because of the ease of installation.

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There is an unusual kind of chimney damper available for masonry chimneys serving fireplaces. The damper is at the top of the chimney and the damper's position is controlled from the fireplace inside the house. Such dampers have the potential advantage of preventing cold outdoor air from descending into and cooling the chimney and then the house when the fireplace is not in use. It is absolutely critical that the damper never shut due to heat, breakage, or wind, when there is a fire in the fireplace. As a practical matter, such dampers should also not be damaged by chimney fires. The dampers should probably also be designed so they cannot freeze shut; people often light fires before remembering to open the damper. Until both the safety of such devices is clear and the possible beneficial effects are quantified, I would be hesitant about using them.

Be Your Own Chimney Sweep

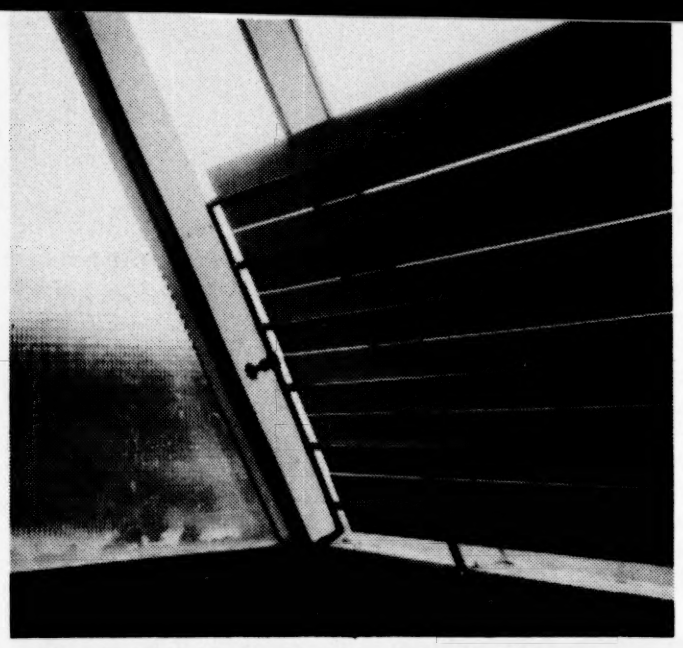
Few enterprises are so ripe for disaster as sweeping the potential fire hazard out of a dirty chimney. This well-illustrated book tells how to do it right and appears to be realistic about the difficulties. The usual Garden Way publication quality includes a source list for necessary supplies. *–J. Baldwin*

Be Your Own Chimney Sweep
Christopher Curtis and
Donald Post
1979; 101 pp.

$4.95 postpaid from:
Garden Way Publishing Co.
Charlotte, VT 05545
or Whole Earth
Household Store

If your stove is equipped to heat water, by all means do so. Heating water consumes valuable energy, and for a small investment, you can at least preheat the water entering your hot water heater and benefit by lowering your gas or electric bill and increasing your supply of hot water. Cleaning of the coil is best done by a strong solvent that removes scale and muck from the inside of the tubing. In the past strong corrosives such as sulphuric and hydrochloric acids were used, but they were dangerous to handle and dispose of and they corroded the metal.

The best solution to use is a product called *Nutek 500* that is not acidic until heated and is biodegradable. We hesitate to say that it was developed for the cleaning of nuclear reactor watersides, but it remains the best product. It is probably not carried by your local stove store, but it's worth shopping for. Try a commercial boiler supply house or a boiler maintenance service. Don't let some slippery-tongued boiler salesman sell you acid. Specify *Nutek 500.*



Big Fin

Steve Baer feels that the attached greenhouse is one of the best solar strategies for the homeowner — you get space heating, vegetables, and a whole dimension of agreeableness added to the house. With his new device it's an even better deal.

The Big Fin solves most of the problems associated with an active solar collector by simply being mounted inside the greenhouse. You heat your water with straightforward, exposed, adaptable black aluminum fins fitted on copper pipe which thermosiphons the water direct (no anti-freeze and heat exchanger since there's no likelihood of freezing indoors) to your hot water supply. You don't bother with insulation because the greenhouse is glad to have any heat lost from the system. You save about 50 - 70% in cost over most solar water heaters.

—SB

Big Fin
$4.50 /sq. ft. (8' X 8" Big Fins cost $24 each) from:

Zomeworks
Box 712
Albuquerque, NM 87103

Solar Law

A thoughtful work whose time has come. Although this book may be ultimately more useful to the attorney who is engaged in progressive real estate development or who is simply out to help a friend building a solar heated home it is also a book which should be on the reading list of anyone interested in the practicalities of solar energy.

As Kraemer will soon make the reader realize, solar heating involves more than putting panels on your roof and waiting for the clouds to go away. What happens when your Neanderthal neighbor builds or landscapes in a way which threatens your access to the sun? What does a commercial builder in an urban area do to protect his solar investment from skyscrapers and billboards?

Unlike some oriental countries the laws of this country do not give anyone the "right," in the legal sense, to sunlight. Furthermore, there is no place in the continental U.S. upon which the sun directly shines. Our energy-bearing light comes at us at an angle, which creates problems with our neighbors which good fences cannot assure. With this in mind Kraemer presents a coherent and useful analysis of the problems of solar heating along with suggested forms of easements, zoning laws, and restrictive covenants. For those of us in the legal profession who are interested in encouraging and protecting this energy source Kraemer also provides model legislation which would protect solar rights and recognize arrangements between individuals for the mutual protection of solar heating systems. *—William S. Cline*

Solar Law
(Present and Future, with Proposed Forms)
Sandy F. Kraemer
1978; 364 pp.

$46 postpaid from:

Shepard's, Inc.
P.O. Box 1235
Colorado Springs, CO 80901

A Golden Thread

The past gives permission to the future, vaulting hysterias of Nowness. It's the difference between some kid intoning solar slogans and granddad remarking that yeah, well, why in hell do you think he built the family's Cape Cod salt box with the main rooms on the south side?

CoEvolution *has been party to the making of this book — we ran Butti & Perlin's surprising history of solar water heaters in California around 1900 in Fall '77, solar water heaters in Florida around 1930 in Spring '78, and a stroll past 2500 years of solar invention in the last issue. It's wonderful stuff, not only for the permission and fascination in it, but also as a peerless source of design ideas.*

—SB

A Golden Thread
(2500 Years of Solar Architecture and Technology)
Ken Butti and John Perlin
1980; 304 pp.

$15.95 postpaid from:

Cheshire Books
514 Bryant Street
Palo Alto, CA 94301

or Whole Earth Household Store

Some of the technical lessons of solar energy found in **A Golden Thread** are still being relearned today. The drawbacks of high-temperature solar concentrators for driving heat engines were discovered almost a century ago. These same drawbacks are today leading many of our best analysts to turn from solar "power towers" to low-technology, low-temperature systems like solar ponds with Rankine cycle engines. Likewise, it is today the conventional wisdom to advocate extensive use of some of the more expensive solar technologies in remote rural areas and in the Third World — where conventional energy costs are prohibitively high. Exactly the same logic led to the pioneering early work in solar irrigation pumping in the American Southwest and in the French and British colonies of North Africa. Once again we have come full circle.

—Amory Lovins (introduction)

•

As indigenous supplies dwindled and wood had to be imported, many city-states regulated the use of wood and charcoal. In the fourth century B.C., the Athenians banned the use of olive wood for making charcoal. Most probably they passed this measure to protect their valuable groves from incursions by fuel-hungry citizens. In the same century they also forbade the exportation of wood from nearby Attica.

A Chinese Biogas Manual

With seven million biogas generators working in China today, it seems safe to say that they know how to do it. The book is a direct translation from the Chinese and consequently gives a feeling of the culture that actually uses it as an instruction book. A wide variety of soil types and climates are considered, along with the various materials that can be digested. Successful operation methods are emphasized. Readers of more familiar biogas texts will be pleased at the absence of grandiose claims and self-righteous hype: It's just plain folks, making it work. *—J. Baldwin*

A Chinese Biogas Manual
(Popularising Technology in the Countryside)
Ariane van Buren, Ed.
1979; 135 pp.

$11.95 postpaid from:

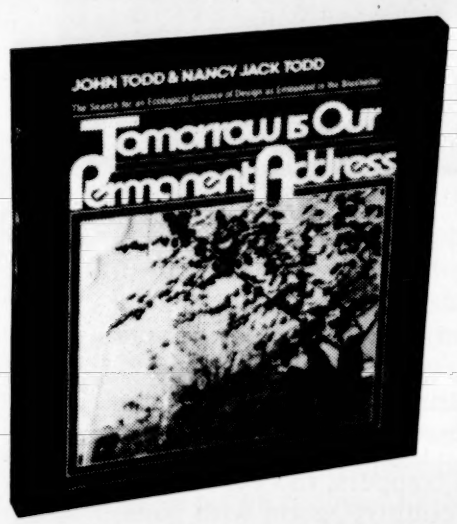
ISBS, Inc.
P.O. Box 555
Forest Grove, OR 97116

Tomorrow is Our Permanent Address

The pioneering work of the New Alchemy Institute has adorned the pages of **CQ** *on numerous occasions for good reason: the Alkies are one of the very few outfits able to back their philosophy with good science and irrefutable (and dramatic) demonstration. This book by two of the Institute's founders sharply defines the underlying philosophy, shows the significance of the existing demonstrations in the Arks, and concludes with an exciting discussion of the potential of it all in future design. I'll admit to being a biased reporter here: I think so highly of this work that I've joined it. To me it holds the promise of being an immediately effective way to bring about "solar villages" and neighborhoods and eventually a radical change for the better across this wastrel society.*

—J. Baldwin

Looking through the southern facade into the interior of the Cape Cod Ark.



Tomorrow is Our Permanent Address
(The Search for an Ecological Science of Design as Embodied in the Bioshelter)
John Todd and Nancy Jack Todd
1980; 156 pp.

$4.95 postpaid from:

Harper & Row Gen'l. Books
Keystone Industrial Park
Scranton, PA 18512

or Whole Earth Household Store

Right beside this concave concrete dish, a hole is dug for the pit, filled with water until the concave dish beside it floats and can then be floated over until positioned above the hole. The water is then pumped out, bringing the dish to rest in place at the bottom of the hole. A cork is then removed from the centre of the dish, so that it will not float upwards as the water seeps back into the hole. With the concrete dish as a firm base to stand on, workers can then proceed to build up the brick walls of the pit along the rim of the dish. Heavy clay is packed over the top of the completed fermentation tank to increase the downward pressure on the pit. Enough water is also kept in the pit at all times to prevent flotation.

Most agricultural environments are intrinsically unstable because the crops are planted, removed, and altered from season to season. This instability can lead to pest outbreaks because biological regulatory mechanisms do not have time to become well established. In the Arks we have increased the ecological diversity and biological stability through the creation of aquatic and terrestrial "islands" throughout the interiors. These "islands" include stable perennial plants such as herbs, flowers, and grasses, like bamboo, that are not cropped. These provide stable habitats for pollinators, predators, and the parasites of pest organisms. Among the predators are wasps, flies, predatory mites, spiders, frogs, and lizards. The aquatic "islands" have a special function in that they offer a habitat for damsel flies that prey on whiteflies (*Trialeurodes vaporium)* and other pests. The entire network of undisturbed islands is located in growing areas that are less than optimal for crop plants.

Proceedings of "Solar Glazing: 1979 Topical Conference"

With a title like that, you couldn't be blamed for falling out of your chair asleep before page 3, but read on! This fat collection of papers represents much of what's known about glazing for collectors, buildings and greenhouses, and includes the accessories such as framing and movable insulation as well. What a goldmine this is, as any of you who have tried to find out about the several choices must realize. It's not entirely free of manufacturer's puffery, but it's a good start towards a comprehensive information bundle that will permit definitive comparisons. It's a rare solar book that excites me these days, but this one has been needed for so long by so many people that its availability must be rated as an Event. *—J. Baldwin*

Proceedings of "Solar Glazing: 1979 Topical Conference"
(A ringbound notebook of papers and catalog sheets)

$20 postpaid from:

Mid-Atlantic Solar Energy Association
2233 Gray's Ferry Ave.
Philadelphia, PA 19146

Silicone — Glass Cloth for Solar Glazing
by B. VanWert & C.G. Currin

Silicones are well known in many industries for their outstanding resistance to weathering, insulation, and other environmental forces. When coated on open-weave glass cloth for increased physical strength, silicone resins become a viable candidate for durable flexible glazing. Experiments show the solar transmission can be 90 percent and stable for UV exposures equivalent to 20 years in Arizona. The glazing is flexible at temperatures as low as —50F and is stable for long periods at temperatures as high as 500F. The tensile strength, determined by the glass fabric, can exceed 100 pounds per inch of width. Specific silicone sealants may be used for seaming and sealing to support structures. Application experience with various solar structures is now being obtained.

Sheepherder Rich on her summer range, Cinnamon Creek to Scare Canyon, Utah.

MX Missiles & Smart Coyotes

by Laurie Rich

Attending the 73rd annual Woolgrowers Convention this winter at the Hotel Utah in Salt Lake, woolgrowers were informed by Governor Matheson that the MX missile program will cut right through the heart of West Desert grazing allotments – the backbone of winter range for Utah sheepmen. The Governor has received a $1 million appropriation to study effects of deployment of the MX in Utah. The Governor said, "The way we live in Utah will be tested sorely," and "the MX program will have greater impact on Utah than any industry yet." Congressman Orrin Hatch followed with a campaign speech backing his "Sagebrush Rebellion" in the Western States, a movement purported to be trying to wrest power away from federal interference with private industry and give the power back to the states. Hatch, a Utah Republican, spoke up for his party's "free enterprise" platform, a John Birchite campaign stratagem aimed at federal regulatory bodies such as the Department of the Interior.

Ms. Rich sent this letter along with some enjoyable poems. The letter was the more interesting, so we decided to print it and ask for photos. Saying nothing about herself, she says a great deal. –SB

I attend the Woolgrowers' Convention each year and I'm usually the only sheepherder there. The sheepmen spend a lot arguing for more predator control. These are range-hard but sensitive people, who know their own business and who know coyotes. I jumped the fence years ago from my post as editor and writer of the **Utah Environment News** to a life as a sheepherder with wily coyote my constant adversary. After three years on the same piece of canyonland in Northern Utah, in a constant position of observation of the range, the herds, the coyotes, and Man (me being the only representative of my species there at all times) – I've seen some amazing displays of tactics and attack in the bands of coyotes who family there on Cinnamon Creek.

The coyotes teach their young to kill all summer and fall. The sheep are easy prey, and this excites the coyotes, as the family constantly circles and harasses the herd each night and morning, increasing activity as more and more cold spells come on. The herder's presence is the first best protection to the herd, being as Coyote steers clear of the scent of Man. The coyotes only take one or two of my 1500 head each year – these are bigger sheep, not lambs. My herd are purebred Columbian breed ewes – beautiful sheep, hand-picked for their health, stamina and herd instinct on the range, which makes for another key protection against predators.

The trappers, the best shots in the country, good with guns, good with traps, skilled and sensitive in the wilds, are another best protection for the herds. Trappers come in June to visit all the camps and ask the herders where the coyotes are howling and leaving sign. The trapper in my area has taken a bitch each year from the ridgetop where my sheepcamp looks out over Cinnamon Creek. The pups hunt and kill instinctively and have a bountiful supply of ground squirrels, berries, etc. But without the benefit of both parents' teaching them, the pups are not encouraged to kill sheep. And their kill then is less expert – a full grown dog will strike right at the throat. I find pup kills on the range where a sheep's throat is covered with miss-hits but the sheep dies anyway. With the bitch eliminated each year, however, the pups have not bothered my yearlings and dries nearly so much as when the parents were there to teach their young to kill.

Coyotes go after the lambs more than the bigger sheep. And it's

Joe Martinez

The herd's winter range near Topaz Mountain, Utah, where the MX missiles are coming. The sheepdog is part coyote.

true they don't kill just to eat. In the Fall when the sheep and game are in rut, they make more vulnerable targets, and this, added to increasing cold spells, excites the coyotes to chase and kill. During lambing time in May and April the coyotes can sense when a ewe is about to lamb, and they kill and claw the fresh lamb right out of her. Last year on the West Desert one pair of coyotes was attacking just black sheep! I was down there with the trapper at the time and we inspected bites on the flanks of Scott Cooke's black ewes. The coyotes had taken down nine blacks that week, and as Scott described it, "not like coyotes usually kill – striking straight at the throat, but all of them like this one – biting big chunks off the rump." The sheep die anyway because of maggots.

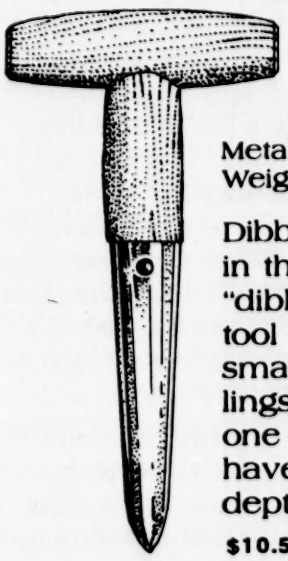
Black sheep serve only as markers to sheepherders – one black to so many white sheep in the herd. The herder counts his black sheep every morning and if they aren't all there he goes riding for stray bands. Cooke and the trapper and the other herder and myself all knew the coyote was smart enough to pull a trick like this just to get back at Man. And we all knew, too, that federal trappers had flown the area that winter slaughtering 120 coyotes from the air. Some of the ground trappers are afraid the coyotes may step up harassment and slaughter of sheep in due consequence of this unfair advantage Man has in the air. ■

Smith & Hawken Tool Company

Bulldog Tools of England, a 200-year-old company with a high-quality line of hand gardening tools, now has an American distributor. They are built to last, and the prices reflect this – most of the spades, forks and hoes are in the $20 - $40 range. Most come with the all-wood durable D-style handles, and many have specialized uses. ("Hawken" is the Paul Hawken who founded Erewhon and wrote **The Magic of Findhorn.***)* *–Richard Nilsen*

Smith & Hawken
Tool Company
Catalog & price list
Free from:

Smith & Hawken Tool Co.
68 Homer Street
Palo Alto, CA 94301

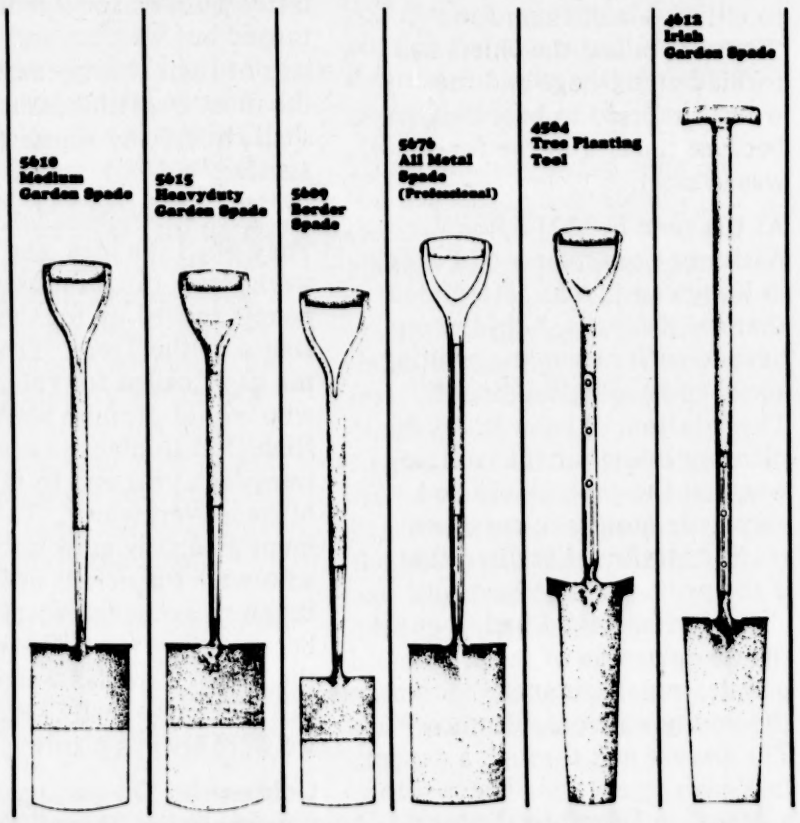


3054
Dibber

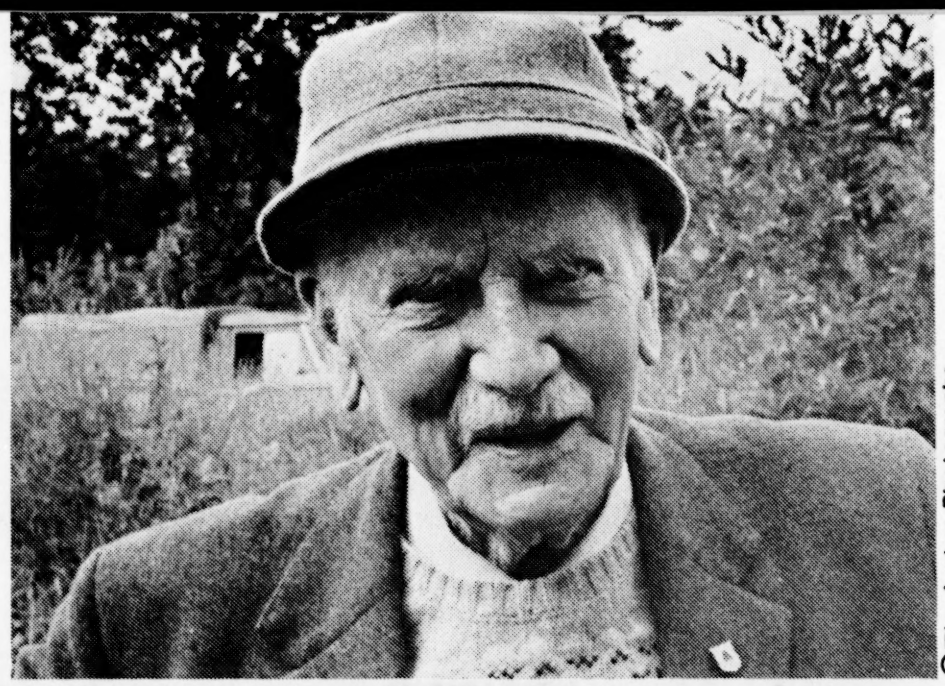
Metal shod T-handle
Weight: 1.0 lb.

Dibbers are also known in this country as "dibbles." It is a handy tool for setting out small transplants, seedlings, and bulbs. With one quick stroke, you have a hole of desired depth and width.

$10.50



A Man of the Trees



©Thorington Photographs

St. Barbe Baker

Dr. Richard St. Barbe Baker, O.B.E. (Order of the British Empire) has been encouraging tree planting longer than most people have been alive. Now 90 and living in New Zealand, he started The Men of the Trees nearly 60 years ago. The American branch served as one of the inspirations for the Civilian Conservation Corps during the 1930s. Dr. St. Barbe Baker wrote to us recently, "The time has come now to understand and underscore the contribution of trees to Life; the first product of trees being oxygen, the second, water and the third, food."

This interview by Edward Goldsmith, editor and publisher of ***The Ecologist****, originally appeared in that magazine's October-November 1979 issue, and is reprinted by permission here.* ***The Ecologist*** *continues to be an excellent magazine with a world-wide scope, and deserves more readers. The January-February 1980 issue is entirely devoted to tropical forests and ways in which they can be preserved. (****The Ecologist****, $20/10 issues by surface to U.S.; $26 by air, from 73 Molesworth St., Wadebridge, Cornwall, U.K.)*

The Men of the Trees headquarters is at Crawley Down, Crawley, Sussex, U.K. *-Richard Nilsen*

Goldsmith: What made you start Men of the Trees?

Baker: I had news that an ecological survey was being undertaken in the Sahara, to the north of the Gold Coast, and I learnt that the local tribesmen had been forced by increased desertification to retreat to a small triangle of land, the last remaining patch of forest in the area. There was desert behind them for a thousand miles, and desert to either side of them for a thousand miles; the chiefs had forbidden marriage and the women refused to bear children because the end of the forest was in sight.

At the time [1922] I was Assistant Conservator of Forests in Kenya and I was determined that the Kenyans should never have to suffer such an appalling social and ecological disaster. The solution, as I saw it, lay in planting trees, but the trouble was that the government had very little money to spend on reafforestation. I realised that if the project was to have any chance of success, I had to enlist the co-operation of the local people, in particular the Morans, the young warriors. But how? The answer was through a dance. In Kenya, everything starts with a dance, so I went to the local elders and I said, 'You have a dance when the beans are planted, another when the corn is reaped, what about a dance of the trees for tree planting?' 'Trees? That's Shauri Ya Mungu. That's God's business. They just grow.' 'Yes,' I said, 'but if you destroy all your parent trees, your mother trees, you don't give Mungu a chance. We will have a dance in three weeks time. I will offer a prize of a fatted bullock for the best turned out warrior, and a necklace of their favourite beads for the most beautiful damsel. I shall choose the winning dancer, assisted by a committee of twelve chiefs.'

They liked the idea, and three weeks later three thousand people turned up for the first Dance of the Trees. That was the day I called for volunteers who would promise before the High God to plant so many trees each year and to take care of trees everywhere. The movement gradually grew until tribes who were suspicious or hostile began to exchange hospitality because they were all Men of the Trees. The name started as a nickname really because we were always planting trees.

Goldsmith: Do you agree that poverty in the Third World is not simply deprivation of material goods? People are poor not because they are short of electric toothbrushes, they are poor because there are more and more people living on land that looks increasingly like the surface of the moon, devastated through deforestation and soil erosion. Would you accept that?

Baker: Yes. You can gauge a country's wealth, it's real wealth, by its tree cover. In spite of our beautiful parks, Britain is only 6.5 per cent wooded, whilst France is 26 per cent wooded, Germany 28 per cent and Sweden 57 per cent. We are almost at the bottom of the list: there is only one country worse than ourselves and that is Ireland. A country's very poor that doesn't have trees. Look at the Sahara: the desert is spreading along a two thousand mile front, in some cases to a depth of thirty miles in one year. It is becoming poverty-stricken. People who have lived for generations on what the forest yields are now having to cut down the forest to make way for cash crops, forced to retreat before the oncoming desert.

Goldsmith: In Africa do you think it is possible to develop, in the Western sense of the term, without causing deforestation

and other forms of environmental degradation?

Baker: No.

Goldsmith: Do you think people are going to face this fact?

Baker: It is difficult.

Goldsmith: In this country, what percentage of the land area do you think should be reafforested?

Baker: The minimum for safety is one third of the total land area. I think what is happening to the elms must be alerting the whole country to the necessity of trees, of the need for more trees. The elm has the largest leaf surface of any tree in Britain. If you defoliate a large elm and put the leaves together edge to edge, they would cover ten acres. So naturally, the first tree to suffer from air pollution was the elm and, of course, when an elm is suffering from fatigue it is subject to attack by disease: the elm bark beetle, the carrier of the elm fungus, comes along and the tree succumbs.

I look at it this way. If a person is living a normal life and not abusing themselves – not smoking too much, not eating too much, not drinking too much – but living normally and eating the right food – they will be fit and well. It is only when they start abusing themselves that they are prone to attack by disease. It is the same with trees.

The next tree to go (the next tree with the largest leaf surface after the elm) is probably the beech: after that the sycamore: and so on. Finally it will be Man's turn. We forget that we owe our existence to the presence of trees and as far as forest cover goes, we have never been in such a vulnerable position as we are today. The only answer is to plant more trees – to plant for our lives.

Goldsmith: If we were to grow trees on a third of the land in this country, we would have to use up a good deal of agricultural land: don't we need that land to feed our population?

Baker: If you want to double your supplies of food, then you should devote twenty-two per cent of your farm to trees, to strategically planted shelter belts. We found in Alberta that if we devoted twenty-two per cent of a quarter section, that's 160 acres, to trees we could double the crop output. Trees create micro-climates, reduce the speed of the wind, lift the water table and increase the population of worms. Darwin revealed all there was to be known about worms, but he didn't tell us how to harness them. If the farmers only knew how to harness worms, they could double their crops. Trees provide the answer.

Goldsmith: I can see that this could be so in Alberta, where the winds sweeping across the prairies are obviously more destructive, but do you know of any research which shows the effects of tree cover on crops in Britain?

Baker: If it works in Alberta, it would probably work much better here.

Goldsmith: What techniques are available today for replanting trees in the arid tropics?

Baker: I have had a good deal of experience of this over the last twenty years. The first thing is to get the voluntary co-operation of the local people. In Morocco, we were able to employ nearly 80,000 people, 40,000 of them planting trees and making roads through the new forests. In Algeria we used what has been called the 'banquette' system for replanting. We threw up little banks all along the mountain side and planted fruit trees – apricots and figs – on them, with cereals in between if the slope was gentle enough. If it wasn't, then we stuck to trees, all Mediterranean species. The first planting party goes along and digs the holes, the next wave brings up the little trees, and the last wave puts them in the holes. Then the tankers come and spray the area.

Goldsmith: What do they spray?

Baker: Oil mulch from the Esso petrol refineries. It stabilises the dunes and draws down the heat. This lifts the water from underneath the ground and the water comes up in steam, leaving the salt behind in the soil. It is like growing trees with underheat, as in a nursery. After one week you see a shoot of about one inch long: a week later it will be two inches or so; and in eighteen months will have grown to fifteen feet.

We have worked out that the economic rotation of a plantation of Eucalyptus is six years or six and a half at the most. But a single eucalyptus tree, 45 feet high, will transpire 82 gallons of water a day into the air. In this way, a microclimate is created in which one can grow food.

The effect of the black mulch is to draw down the heat; that sends up a wall of heat which in turn drives the rain-bearing winds from the sea to a height where they come down as dew or rain at night.

Goldsmith: If the optimum commercial rotation for eucalyptus trees is six and a half years, what would be the optimum rotation for an oak tree in Britain?

Baker: Well, for hedgerow oaks, which are grown very fast for special purposes, they would be ready after about 150 years or so. To get the best value out of an oak, however, you want height not girth. If you plant them in conjunction with beech, you can get a return of five pounds per acre on a 320 year rotation for oaks with three crops of beech.

This is actually being done on the Lichtenstein estate in Germany. Here the acorns are planted in lines six feet apart and after twenty years, swathes are cut at right angles to those lines, leaving one stem every six feet. Then the oaks are underplanted with beech. You have to give the oak twenty years' start over the beech because the beech will soon suppress the oak: the beech is a shade bearer, the oak a light demander, so you have to crop the beech after a hundred years. This has to be quite a careful operation as the south-east stem of the oak mustn't be exposed to the morning sun – when the oak sap freezes on a frosty night, a rapid

thaw fractures the cells and you get a 'frost shake' which ruins the timber.

Thinning is done by a supervisor, his assistant and a student. They watch the pattern of the shade on the forest floor and they are very careful not to let in too much light, otherwise grass would grow and take away from the wood increment. This is done year after year, and if the supervisor dies, then his assistant takes over and a new student is taken on. Thus, there is absolute continuity of management. You get three crops of beech and after 320 years, the whole forest is felled. The land is used for agriculture the next time round, and the foresters move on to other land that needs building up.

I divide agricultural land into seven grades and forest land into seven grades, the last three agricultural grades overlapping with the first three of forestry. By planting the lower quality forest land you can raise its grade and transform it into agricultural land. The only category you can't transform into farmland is that land which would be sand dunes if it were deforested.

Goldsmith: If you treat land in this way, then theoretically it should last forever?

Baker: Yes, forestry is forever.

Goldsmith: They talk about Grades One, Two, Three and Four of agricultural land in Britain. Grade One is land that grows wheat indefinitely, and there is only 2.8 per cent of our land in that category.

Baker: Talking about growing wheat indefinitely, there is a field at Rothamsted Research Station which has grown wheat continuously for a hundred years. But the secret is that the field is surrounded by trees. It has great oaks around it and the roots of the oak go down to a great depth, tapping many minerals. When the leaves have served their function (carbon assimilation and wood formation) they fall to earth with just the right proportion of trace elements needed for plant food, animal food and tree food. The worms come up and take the leaves down overnight.

Goldsmith: What is the effect of planting pine trees generation after generation. Does this lead to soil deterioration?

Baker: Obviously. The hair-roots of the pine are furnished with a little sheath of acid, whose object is to enable the root to get a hold in a rock. If you have root competition between pines, the acid starts killing off the competitor's roots and an acid pan is formed in the soil. If you are foolish enough to plant a second crop of pines on the same soil, the roots only go down about two-thirds of their normal depth because they fight shy of this acid pan. If you are crazy enough to have a third crop of pines, the roots will only go down five inches or so and the trees blow over in the first storm.

Goldsmith: How about the litter produced by these conifers?

Baker: It is acid. Nothing else will grow and it is not good habitat for wildlife.

Goldsmith: Do you think the big machines used in modern forestry affect the soil adversely?

Baker: Heavy machines tend to form a hard pan in the soil. This has already happened in the Californian redwood forests, where these huge machines are used to do the felling. The ticking-over of the engine causes the ground to vibrate and a pan is formed about ten inches below the surface. I doubt whether the roots of the young redwoods will be able to penetrate this pan, so they are likely to have a very short life span – twenty to forty years as opposed to two thousand years.

Goldsmith: Isn't it usual in modern forestry to clear the site completely after felling the trees – to remove the understory as well. Is this also a harmful practice?

Baker: In my opinion, there should be no clear-cutting at all. Felling should be by selection of the best stems, the mature trees, or by a group selection method where a cluster of trees is re-

moved to enable the surrounding trees to regenerate the land. Planting should be a last resort. Good forestry, good silviculture allows for natural regeneration and planting should only be done in the case of emergency, or on fresh land.

Goldsmith: Why do you think the British Forestry Commission continues to make use of such obviously unsound practices?

Baker: Forestry departments all over the world are now being run according to the dictates of economics, and Britain's Forestry Commission is no exception. Silviculture is being prostituted for short-term economic gain: it has increasingly become a question of money, machines and manpower – in that order. The Forestry Commission has to satisfy the Treasury and its policy of planting quick-growing conifers for pulp is designed for that purpose. But if the Forestry Commission cannot take a long term view, how can you expect private landlords to do so?

Goldsmith: You played a considerable role in the fight to save the redwoods in California, didn't you?

Baker: Yes, I first saw them in 1930. In those days, they were talking about preserving individual trees in memory of some great American or cause. I was thinking in terms of retaining a micro-climate in which these trees could survive, and I felt we needed at least 9,000 acres in one block to achieve this.

These redwoods play a vital ecological role, filtering out the coast mists through what is called 'horizontal precipitation.' A big redwood will ordinarily transpire about 500 gallons a day into the air through its leaves: when the sea mists come drifting over the forest, they hit this wall of transpired moisture – and down comes rain. If there are no redwoods, the coast mists simply peter out over the desert.

I set to work to conserve 12,000 acres in one block. It took me nine years to create sufficient interest to raise the money to buy the forest back from the concessionaires, but in 1939 people at last began to sit up and take notice. For every dollar we raised, the State of California put up a dollar, and eventually Men of the Trees was able to hand over 12,000 acres to be preserved as a State Park.

Goldsmith: You were in California battling on behalf of the redwoods quite recently, weren't you?

Baker: Yes, last year. I was called over to do an independent report on the National Redwood Park which had been taken over by Ladybird Johnson with much speechifying. You would have thought from the television interviews and radio broadcasts that they were never going to cut down another redwood. How wrong you would have been!

They have been felling on the edge of the National Park and on private land adjoining it, so much so that it had become questionable whether the National Park was still viable.

I managed to get my report out in time for an enquiry into the state of the redwoods at the San Francisco hearing. I did some research in the library next door in case I was needed, and about halfway through the Attorney General came out and said, 'Are you Dr. Baker? Are you responsible for this report?' I said that I was and he replied, 'Thank you, sir. Now we can act.'

He didn't say what he was going to do, but when I got to Washington I learnt that he had declared a moratorium on all felling until the whole issue came before Congress. Later I gave evidence at the Congressional hearings.

Goldsmith: Can you tell us a little more about the Sierra Club hearings? They were rather hectic, weren't they?

Baker: Two hundred truckers and loggers drove down to San Francisco to demand that felling should be permitted in the National Park. They had placards with the slogan 'No More Parks' and they had made effigies, cruel effigies, of Ladybird Johnson. They crowded into the hearing, filling up the court and shouting in unison 'No More Parks!'

I was slipped in through a side door in the press gallery. There was only one seat left. Quite early on, the Chairman of the Inquiry, a congressman, called on a professor of Forestry to testify. During cross-examination, he asked: 'Professor, what did you say was the economic rotation of the coast redwood?' 'Twenty to forty years, sir.' 'Am I hearing you correctly? Would you repeat that Professor?' 'Twenty to forty years, sir.'

Afterwards the professor came over to me, very apologetically. He knew I would not have approved of his testimony: those trees have a natural lifespan of 1500 to 2000 years, during which they are fulfilling vital ecological functions. But I knew what would have happened if he had spoken otherwise, if he had taken on the big lumber kings and the lumber industry. He would have lost his job overnight.

Goldsmith: What country is making the greatest effort to reafforest its land?

Baker: China. I have been told by a geographer who recently returned from China that 32 million people are permanently employed by the government for reafforestation. Even white collar workers put on their oldest clothes over the weekend and help the peasant farmers to plant trees. All in all, they have increased tree cover from 7 per cent to 28 per cent. I am very proud that Men of the Trees sent seed out to China forty-seven years ago. I like to think that millions of the trees that have been planted were raised from the seeds we supplied.

Goldsmith: One final question, do you think that people are more receptive than they used to be to the message you have been preaching for the last seventy years?

Baker: Yes indeed. Young people today are deeply concerned about trees and the future of Mankind. They feel these things intensely – and that inspires me with great hope. ■

My Life My Trees

Many of St. Barbe Baker's books are out of print; this autobiography was re-issued last year by Findhorn. St. Barbe Baker had a vision and Britain had a world empire – the two complemented each other quite well.
–Richard Nilsen

My Life My Trees
Richard St. Barbe Baker
1970; 167 pp.
£2.25 (about $5.20) postpaid from:
Findhorn Publications
The Park
Forres IV36 OTZ
Scotland

"Baker, I have read your book, **Sahara Challenge**, three times," were Nehru's first words. "Now what are we going to do about the Indian deserts?"

"The answer is the same," I said. "Trees against the desert."

"But," he exclaimed, "the desert's only a hundred miles away and whenever the wind is blowing in this direction the visibility becomes poor and the windows have to be closed to keep out the dust."

"The fields must be tree-surrounded and reduced in size. Trees are needed to fix the soil and lift the spring water table and keep the land cool," I said.

Professional Timber Falling

This book is really good. I've been an amateur timber faller for about five years (cutting trees for lumber, two log buildings, craftswork, firewood, etc.) During this time I've picked up a number of bad habits that seemed to work. Dent explains the rules and why you should stick to them. He begins with the ideal tree, then goes on to explain safe and efficient falling techniques for all the different problem trees that anyone could come across. There are also chapters on bucking and limbing. **Professional Timber Falling** *is written for beginning and experienced woodsmen.*
–Drew Langsner

Professional Timber Falling
(A Procedural Approach)
D. Douglas Dent
1974; 181 pp.
$10.95 postpaid from:
D. Douglas Dent
P.O. Box 905
Beaverton, OR 97005

Perhaps the most effective method the novice or experienced faller can use to improve his falling technique is

Safety effect of proper backcut height

to closely observe his stumps. This is especially true if the tree does not go where the faller thought it would go. The value of observing the stump is that the faller gets immediate feedback as to what happened and what should have, or could have, been done to correct it. Everything the faller does while falling is captured in the remaining stump. Depth of the horizontal cut, angle of the sloping cut, width of the face opening, direction of the face in relation to both desired and actual falling location, levelness and height of the backcut, and width of the holding wood are evident. Also evident is improper technique such as crossing facing cuts, sloping facing cuts and/or backcutting, failure to wedge and many other poor falling techniques.

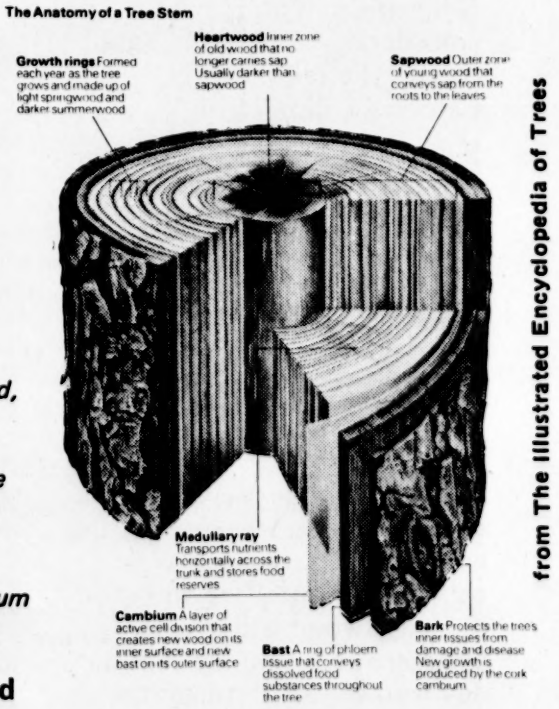
The Illustrated Encyclopedia of Trees
Simon & Schuster's Guide to Trees

There has long been a need for a book on trees for those whose vocabulary does not include such terms as pinnule, disamara, glaucescent, peduncle, corymb, etc. These two excellent books, produced in England and Italy, fulfill that need. The introductory material in both of them is readable and informative, covering the biology, ecology, distribution, economics and nomenclature of trees.

Both provide supplementary glossaries, defining and illustrating botanical terms. Both have a refreshingly world-wide perspective of trees and forests, and stress the critical importance of trees in the evolution and maintenance of an atmosphere that can support animal life. I would be hard pressed to choose between them.

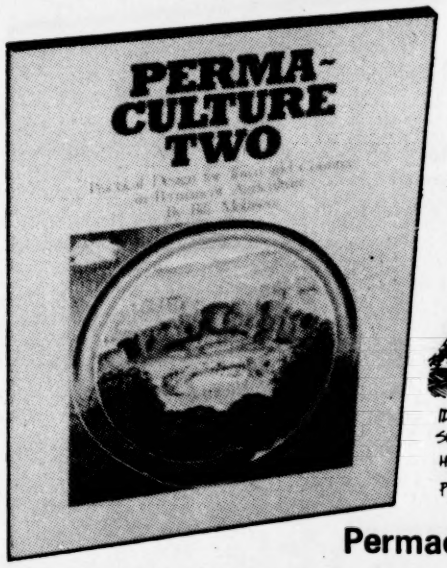
The emphasis of the **Illustrated Encyclopedia** *is on forests and timber, with an interesting chapter on different logging methods world-wide; all the major families of trees are represented, illustrated with color photographs and paintings of typical and common trees of each family, including leaves, flowers, fruit and wood. This is an elegant book, at an extraordinary price for such quality, produced with love and respect for its subject.*

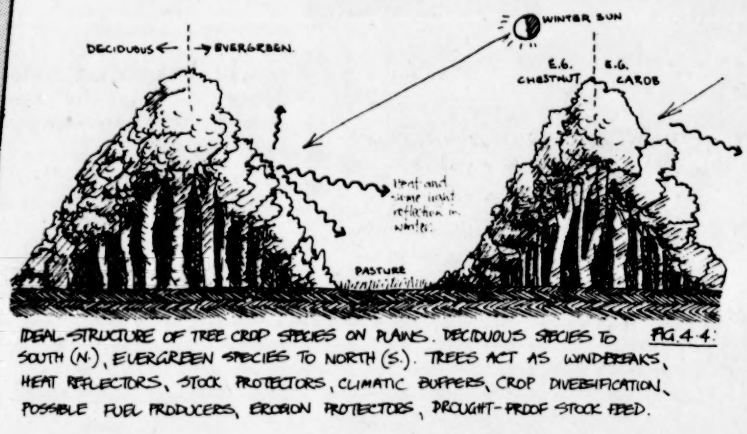
The **Guide to Trees** *covers the evolution, paleobotany, biology, ecology and taxonomy of trees, spiced with historical anecdotes about those who have studied trees, from Leonardo da Vinci to Pliny the Elder and Theophrastus. The book is illustrated with good color photographs of each tree, accompanied by detailed line drawings of leaves, fruits, and flowers. Trees native to or cultivated in North America are color-coded for reference to a climate map; for each tree, information is organized according to genus and species, common name or names, family, etymology of generic and/or specific names, habitat, botanical description, propagation methods, and conditions for growth. This is an enjoyable and useful guide for anyone interested in growing trees for landscaping, home garden, greenhouse or orchard, as well as for those who just like to know the names of the trees they meet in their travels.*
–Carol Van Strum



The Illustrated Encyclopedia of Trees
(Timbers and Forests of the World)
Herbert Edlin,
Maurice Nimmo, et al.
1978; 256 pp.
$15.95 postpaid from:
Crown Publishers
One Park Ave.
New York, NY 10016
or Whole Earth Household Store

Simon & Schuster's Guide to Trees
Stanley Schuler, Ed.
1978; 300 pp.
$7.95 postpaid from:
Simon & Schuster
1230 Avenue of the Americas
New York, NY 10020
or Whole Earth Household Store





IDEAL STRUCTURE OF TREE CROP SPECIES ON PLAINS. DECIDUOUS SPECIES TO SOUTH (N.), EVERGREEN SPECIES TO NORTH (S.). TREES ACT AS WINDBREAKS, HEAT REFLECTORS, STOCK PROTECTORS, CLIMATIC BUFFERS, CROP DIVERSIFICATION, POSSIBLE FUEL PRODUCERS, EROSION PROTECTORS, DROUGHT-PROOF STOCK FEED. FIG. 4.4.

Permaculture Two

Permaculture Two *follows its innovative predecessor with further techniques in the fine art of sustaining the land's productivity through the use of trees and perennial plants. Crops that help shade and nourish each other are planted in patterns that catch water and sun and block the wind. Abundant drawings illustrate these systems for growing food, sheltering animals, and insulating a house behind earth mounds. Author Mollison is from Tasmania, Australia, where his Permaculture Association is pioneering research in arid land agriculture and getting people around the world excited about tree crops.*

—Rosemary Menninger

Permaculture Two
(Practical Design for Town and Country in Permanent Agriculture)
Bill Mollison
1979; 150 pp.

$10.95 postpaid from:

International Tree Crops Institute, Inc.
Box 1272
Winters, CA 95694

The broad strategies of desert re-afforestation are now well tested. Hostile drying winds, rivers, and local oases are the focal points for expanding the vegetation: if we start from up-stream, securing the headwaters and catchments, from up-wind, and from oases, then plants generate moisture downstream, down-wind, and locally. . . .

The aim is to use many more deep-rooted and climatically-adjusted perennial plants for food and structural materials, in order that desert outstations may become more self-sufficient, and to devise low-maintenance systems of domestic agriculture. . . .

Not only will many important vegetables and tree crops grow in deserts, but the native vegetation, where not overburnt or overgrazed, is, in itself, a great resource.

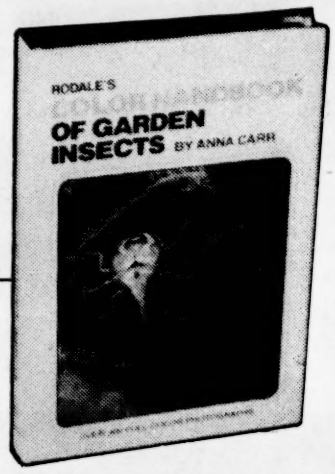
Water lies close underground in many places. Mulch material, as plants or leaves, is abundant. Growth in desert soil is phenomenal if water is available. Modern drip-irrigation plus mulch will grow any domestic crop. While lawns, as such, are rather wasteful disasters, the potential is for a revolutionary forestry, and thus increased rainfall, and a reduction of dust and disease. China is planting 7,600 km of her desert fringe; Australia could do the same, but hasn't as yet started on the first 7 km, preferring to have an unemployment problem, dust, salted soils, and large profits for a few graziers! There has been little or no attempt to develop large desert water storages, or to encourage scour-hole lagoons, and no extensive use of keyline or Negev run-off techniques, although road graders are now available for such work.

Owl holes in English barns

Many large barns in the country have a small round hole at the end just below the angle of the gable. This is to allow the entrance of owls. Great mischief is done to the grain or other food stored in barns by the rats and the farmers suffer considerable loss from the raids of these pesky creatures but, as owls live largely on rats and mice, it is to great advantage to the farmer if an owl makes a nest in her barn. The birds pounce down upon the rodents at night when they are at their damaging work and so keep down the number of these pests. (**The Children's Treasure House**/Arthur Mee).

Lots of Love 'n all,

David Wills
(sojourning in native Great Britain)



Rodale's Color Handbook of Garden Insects

More than 300 pests and beneficial insects leap from these pages in close-up color photographs. While your own worst enemy may not appear (because the insect world is far more varied than a single book can cover), a similar species is probably listed — along with organic controls, geographic range and life cycle data.

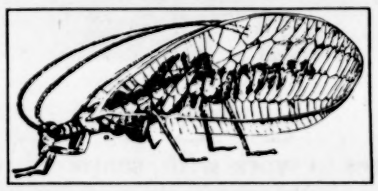
—Rosemary Menninger

Rodale's Color Handbook of Garden Insects
Anna Carr
1979; 227 pp.

$12.95 postpaid from:

Rodale Hardcover Press
33 East Minor
Emmaus, PA 18049
or Whole Earth Household Store

LACEWINGS



NEUROPTERA

These frail and beautiful insects are among the most interesting and directly beneficial inhabitants of the garden. . . .

The larvae are voracious feeders and can consume as many as 60 aphids in one hour and be just as hungry the next hour.

The Will-O'-the-Wisp Bug Light Fish Feeder

Ordinary commercial fish feed contains a lot of ingredients, but the key one is fish meal. If the economic and ecological implications of that bother you, here is an alternative. The Will-o'-the-Wisp feeder attracts insects with U-V light and blows them down into the water for fish to eat. Insects are better than a good substitute for fish meal. The amino acid balance is better for at least some fish (including trout) than that of fish meal or "complete" commercial diets and the quality of the resulting fish may be superior. There are only a few sites "buggy" enough for this tool to supply the entire diet of cultured fish, but it can significantly enhance growth and/or cut down on commercial feed use in most situations.

As compared to other devices of this type, the Will-O'-the-Wisp is better built and safer. One of manufacturer Elmer Hedlund's prototypes has run every night, winter and summer, for five years with no maintenance other than replacement of the bulb; our experience with three of the lights at New Alchemy parallels this. The original unit draws one kilowatt hour of electricity per ten hours of operation, and improvements in the motor and fan may have reduced this. It may make some potential purchasers feel better to know that Hedlund's purpose in marketing the light is to help finance his personal pet project, a 370-acre wildlife preserve he manages in northern Wisconsin.

—Bill McLarney

Will-O'-the-Wisp Bug Light Fish Feeder

$139.95 from:

Hedlunds of Medford, Inc.
P.O. Box 305
Medford, WI 54451

The land around Auroville is scored with gullies like this. Much of the topsoil has already been washed away. Workers in upper right are building a small check-dam.

The Subtlest of Catastrophes

Erosion vs. Reforestation at Auroville

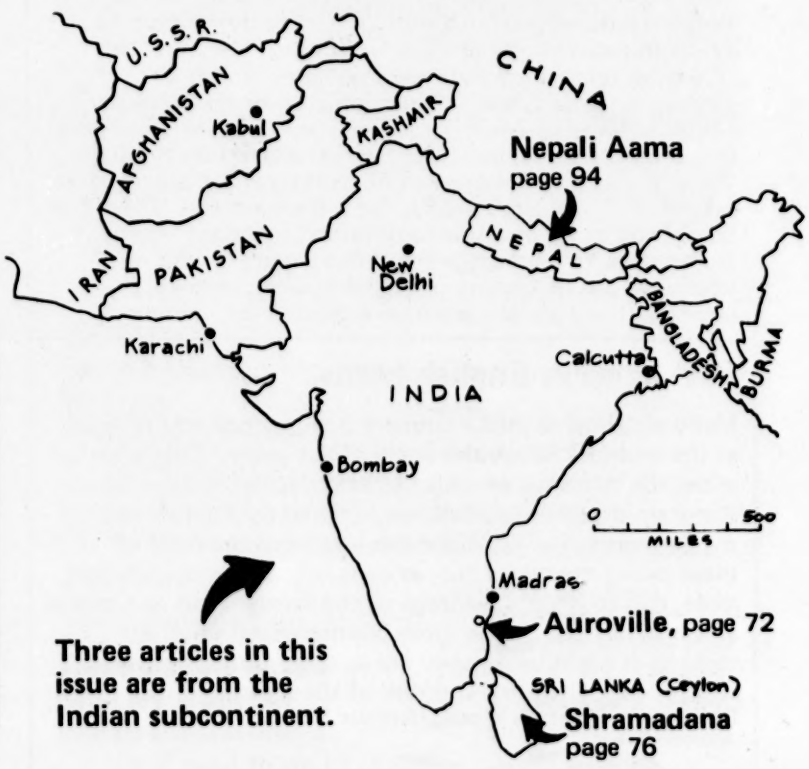
AUROVILLE HAS SOME 11,000 acres to work with, scattered in small plots amid nineteen square miles of village, government, and temple lands on a low-lying plateau 100 miles south of Madras. This plateau, sloping down to bottom lands and stretches of beach along the Bay of Bengal, represents in many ways a typical terrestrial situation. Severely deforested, overgrazed and overcropped, the land is subject to chronic wind and water erosion. Less than 10% of an annual average rainfall of 4 feet is retained on unchecked land, and washout has robbed wide areas entirely of topsoil. Human and domestic animal populations already overstress local life-support capabilities. Increasing exploitation and decreasing restorative care threaten the land's ability to sustain life at all.

Most years, this area gets two monsoons. The Southwest Monsoon brings intermittent rain from May through August (rarely totalling more than 13 or 14 inches, just enough to allow the land to be prepared and crops started). Heavy rain – and occasionally cyclones – comes with the Northeast Monsoon in October-November-December, when most of our 4-foot yearly average rainfall comes down. January through May is predominantly dry, with temperatures over 100° F in the latter part of the season. Gale force and heavier winds are common in the Northeast Monsoon season, and terrible hot, dry, dusty blows are frequent in April and May.

It is the subtlest of catastrophes, at least in these early and middle stages. If harvests are often inadequate, still the land does continue to produce crops; malnutrition may maim lives, but outright starvation is not here yet; under- and unemployment continue to increase, but still most small-holding and landless families manage in some fashion to support themselves. It seems, in fact, as if life were going on as usual.

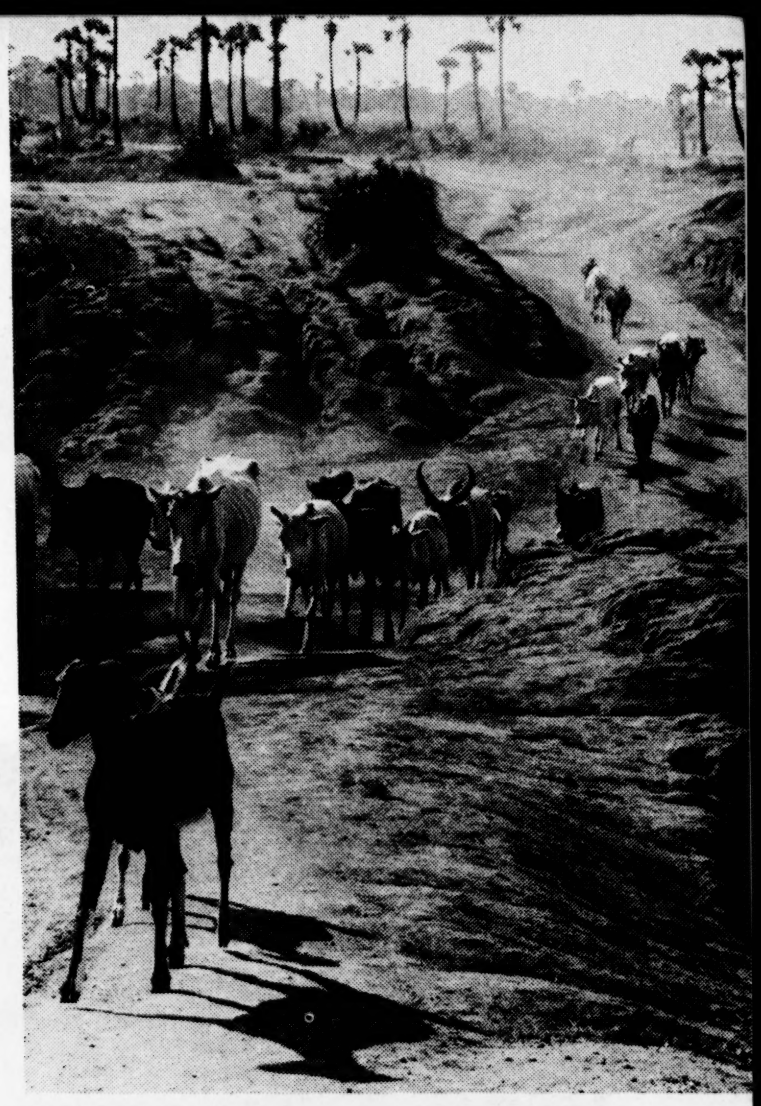
But life is not going on as usual here; it is slowly winding down. Traditional land use practices –

Auroville is a spiritual community of about 500 people from a dozen nations living among 30,000 Tamil villagers in the South Indian coastal state of Tamil Nadu. It was established in 1968 by followers of Sri Aurobindo. Launching a new-age community surrounded by endemic poverty and on land just a few steps away from becoming complete desert has made these well-intentioned newcomers learn fast. Not surprisingly, tree planting is at the heart of the agricultural transformation they are beginning to create. –Richard Nilsen



Three articles in this issue are from the Indian subcontinent.

Afforestation — seven years ago this was desert. Planting young trees is only the first step — they must be irrigated during the dry season, and cows and goats have to be fenced out.



Desert-makers on the move. The protruding ribs on the cows and the gullies in the ground are parts of the same story.

monocropping during the wet season, free grazing by far too numerous herds during the dry – are part of the problem. Uncertain enterprises under the best of conditions, always under-financed, traditional farming practices leave little margin for regenerative action. In fact, neither traditional nor industrial agri-business technology show any signs of competence in dealing with the kind of total environmental deterioration we're faced with here.

Our approach is to consider the environment comprehensively and apply restorative and preventive measures over as wide an area as possible. This means, for our area, water conservation work along with afforestation: water resources must be developed to sustain the trees through their first few hot seasons, and the soil stabilized so that planting work isn't simply washed away or silted under with the first heavy rains. We try to work down from the high points of the plateau with a network of earthwork microcatchments ("bunds") and other small conservation structures (check dams, gulley plugs, causeways, etc.), while setting in a first mixed plantation of drought-resistant shrubs, grasses, and trees, which must be protected by watchmen, fencing, and thorn "baskets."

These measures, employing the simplest technology with local hand tools and labor, work very well. Over the past few years, on land handled in this way, we've seen erosion come to a standstill and water tables rise.

It has to be emphasized, though, that none of these measures are of much use unless carried out as part of a comprehensive program: to build a dam, for example, without prior erosion control work upstream, invites topsoil runoff and silting of the dam site.

Similarly, there's more to planting trees under these conditions than just sticking them in the ground. We lost thousands of trees in our first few plantings due to neglect of basic back-up and protection. Even the hardiest tree species have difficulty surviving the hot winds and dust and hordes of hungry goats of the dry season.

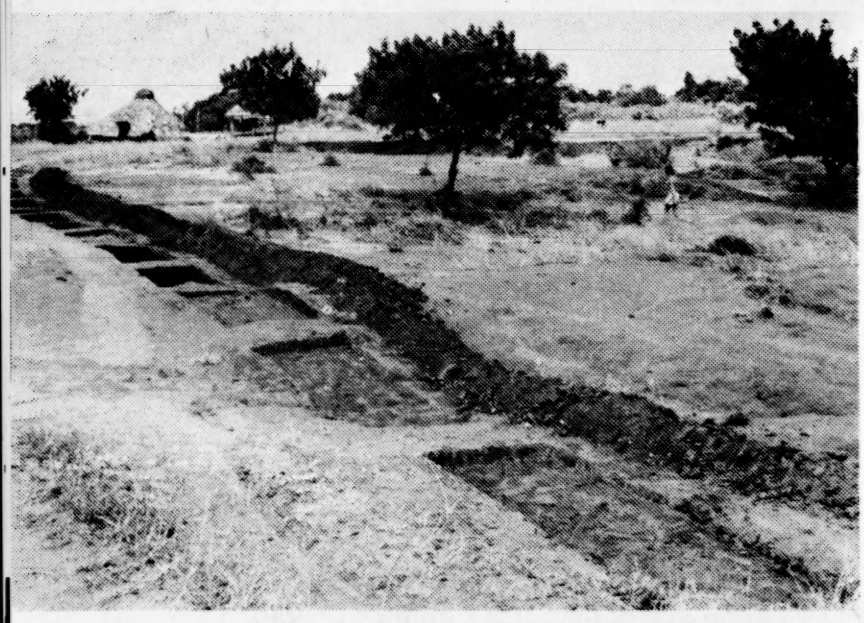
This approach constitutes a holding operation, a way of arresting deterioration and preparing for rebuilding. Beyond lies the need to create a permanent life-support system, a self-perpetuating eco-logy/nomy. Thousands and thousands of people are trying to make a living on this plateau, and the land is simply too depleted to support them much longer through field agriculture. It seems from our experience that the only real possibility for continued growth and development here is through basing cultivation on and around trees.

Tree-based multilevel cultivation – the integrated planting of a variety of ground, shrub, and tree species – opens up a fairly wide range of economic options. Food, fodder, fuel, shelter, clothing, cleansing agents, medicines, craft materials, almost any human need in this climate can be met by following the multi-level pattern of the forest.

This kind of land use is year-round and labor-intensive, affording much fuller human employment than the six months on/six months off cycle of monsoon agriculture. The trees not only shelter intercultivated crops from sun and wind and storm violence, they are themselves far more abundant and dependable producers (less susceptible to weather and pests, less dependent upon humans to survive) than are field crops. And the very presence of trees creates a sheltered and nurturing environment in which symbiotic, self-sustaining, and regenerative opportunities can arise.

Young trees protected from cows and goats inside woven baskets. The watchman is there for the same purpose. The line of planting running alongside the baskets is the beginnings of a cactus barrier fence.

The trees in the background are palmyra palms, the State Tree of Tamil Nadu. They have a life-span of over 100 years, grow under the worst of conditions, and are resistant to almost all insect and animal predation. Wood and leaves are standard village craft and construction materials, fruit and nuts are relished by humans and animals; jaggery (coarse sugar) and juice (both fresh and fermented) are derived from the sap, which is valued for its medicinal properties. The tree is considered sacred by both Hindus and Buddhists — quite a few of the earliest Sanscrit and Pali texts were written on palmyra leaves.



Earthwork basins (called "bunds"). The depressions and mounds break the velocity of run-off water, and trap and retain both water and the soil it carries.

Dry-farmed field crops (dependent on the monsoons for water) in this area include three kinds of millet, peanuts, various lentil-type legumes, a kind of coarse red rice and manioc. Irrigated crops include standard rice, vegetables, bananas, papayas and usually "off-season" millets and legumes. The major tree crop here is cashews, which can be grown without irrigation and for which there is a ready export market. So ready is this market, in fact, that although cashew trees are everywhere, the high-protein nuts are rarely seen in the villages. Other tree crops include palmyras, coconuts, badam (Indian almond), mangoes, guavas, limes, and a wide range of lesser known tropical fruits, berries and nuts.

We've only a handful of acres now that could fairly be described as this kind of developed forest-farm. In terms of enlisting local support we've made very little headway. Cows and goats are still herded into our plantations, trees are still being cut, village lands are still deteriorating, fields are still being whitened with government-subsidized DDT, and confrontations are, if anything, getting more heated. There remains a widespread lack of local comprehension of the connection between cutting trees, erosion, declining soil fertility, and the life-endangering consequences all this implies. And even when comprehended, the hard facts of life in a marginal economy make regenerative options impossible for most villagers.

The one really effective way to get the message across is through living example: once people can *see* the benefits of our way of working with the land in terms of increased crop yields, cash returns and the like, things sometimes begin to click. But the example alone is not enough; broad-based village cooperation requires not only further education and encouragement but a much wider distribution of land and capital than is now the case – in other words, radical social and political change.

Meanwhile, hundreds of people have found employment either working directly for Auroville or on government projects contracted to us. We offer free seedlings, help with planting, maintenance, and erosion control. And something is beginning to happen. An increasing number of local people are asking for and planting fruit trees and requesting our help in "bunding" their land. A few have come to live and work with us directly.

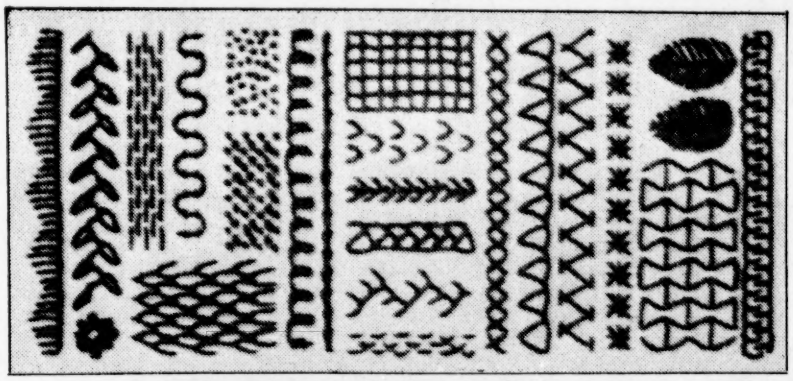
The extent of the task is massive; it's going to be a long haul. We'd like to be in touch with others involved in this kind of work.

Over to you. ■

Colleen, David, Dennis, Jaap, Joel, Jean
c/o Unity Resources Auroville 605 101
Tamil Nadu, INDIA

Tending young trees. The man in shorts is a local villager — nearly 80% of India's population of over half a billion people lives in small villages.

Craft

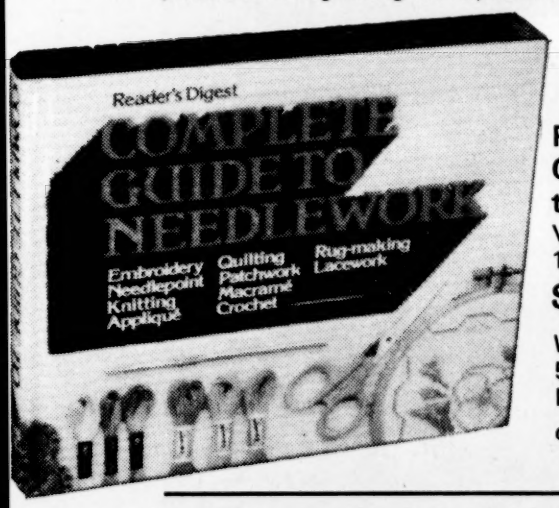


Sampler can serve as a "dictionary" of stitches.

The Reader's Digest Complete Guide to Needlework

The title of this book should be changed to the **Reader's Digest GOOD Guide to Needlework.** *Though it is not complete, the skills are covered with an excellence I've come to expect from Reader's Digest how-to books. Tools, basic techniques, and materials are covered thoroughly, with sample projects suggested at the end of each section. All illustrations and instructions are exceptionally clear and easy to follow. A good companion to the* **Complete Encyclopedia of Needlework** *(Running Press, 1972) and recommended jumping-off point for a beginning craftsperson.*

—Evelyn Eldridge-Diaz



Reader's Digest Complete Guide to Needlework
Virginia Colton, Ed.
1979; 504 pp.
$17.95 postpaid from:
W. W. Norton & Co. Inc.
500 Fifth Ave.
New York, NY 10036
or Whole Earth Household Store

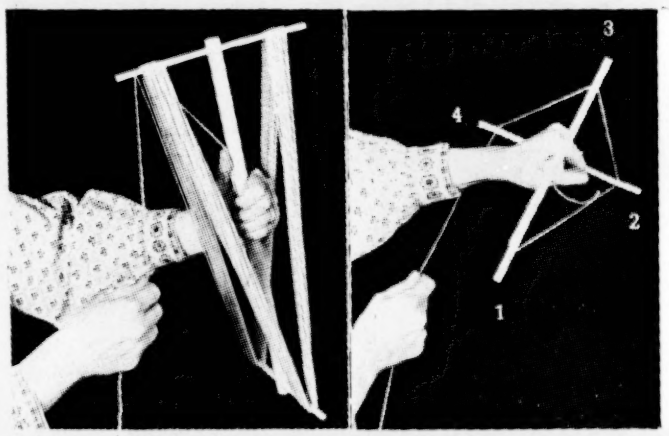
Spider's Games

This is one of the better beginning weaving books I've seen. Morrison begins with VERY basic things like how to wind a ball of yarn and progresses gradually to twill, brocade and more advanced techniques. She gets you into weaving using things you might have around the house (a picture frame for a loom and spokes from an old umbrella for needles) and even tells how to make a simple scale for weighing yarn. The beginning projects are attractive, useful and manageable. They won't turn out looking like Bozo made them. The illustrations are very nice and instructions clear. Approach to weaving is creative — I like the section on cat's cradles as an introduction to the craft. Nice title too.

—Marilyn Green

Spider's Games
(A Book for Beginning Weavers)
Phylis Morrison
1979; 128 pp.

$14.95 postpaid from:
Univ. of Washington Press
Seattle, WA 98105
or Whole Earth Household Store



To start winding on a niddy-noddy, grasp it at its middle, holding the yarn's end in that grasp as well. Think of the four ends of the crossbars as being numbered in turn, as in the photo. Wind your yarn over 1, under 2, over 3, and under 4, then back over the first bar again.

As you fall into the rhythm of the winding, the tool will begin to nod. "Niddy-noddy, niddy-noddy, All head and no body." (Old rhyme)

Studio Potter

This is a lovely magazine in every way. It feels good in the hands like a finely made pot. The contents live up to the container. In this case, you can judge the book by its cover. Well-written articles on all aspects of ceramics are mainly for serious potters. However, a fine combination of photographs, tasteful layout and good, clear writing make this of interest to anyone with sensibilities. I especially enjoyed the conversations with and many photographs of the potters themselves. The magazine has solidity and character and is a MUST for all serious potters. It is well worth $8.50 a year for two issues.

—Marilyn Green

[Suggested by Kathy Riggs]

Studio Potter
Peter Sabin &
Gerry Williams, Eds.
$8.50 /semi-annual from:
Studio Potter
Box 172
Warner, NH 03278

Box 428, Sausalito, CA 94965

Porcelain is a kind of in-word among potters and those who buy pots. Everyone talks about P*O*R*C*E*L*A*I*N. It has become P*O*P*U*L*A*R. As frequently happens, this enlarges the definitions, which sounds grand but frequently means only the removal of standards. This has certainly happened with and to porcelain, and almost any clay which fires white is now called porcelain and takes advantage of the fashion.

Porcelain is white and translucent, clay-becoming-glass, a transition between the opaque and the transparent, between earth and air. Difficult enough to work, with little of the fluid plasticity of stoneware, in the kiln it will warp, stick down, distort, destruct unless it is treated with a special respect and consideration.

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I Like Porcelain Because Blood Shows Up Better On It

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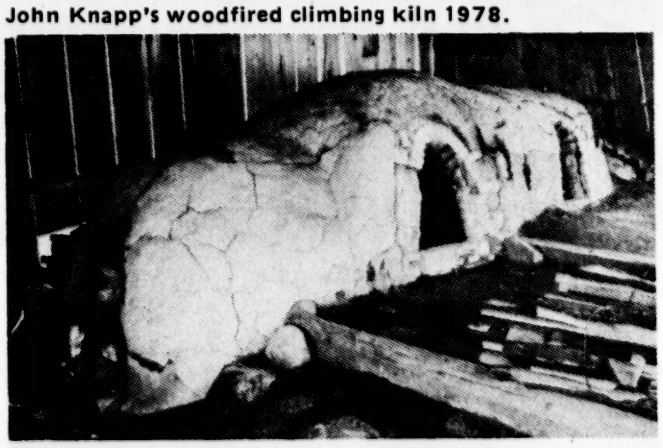
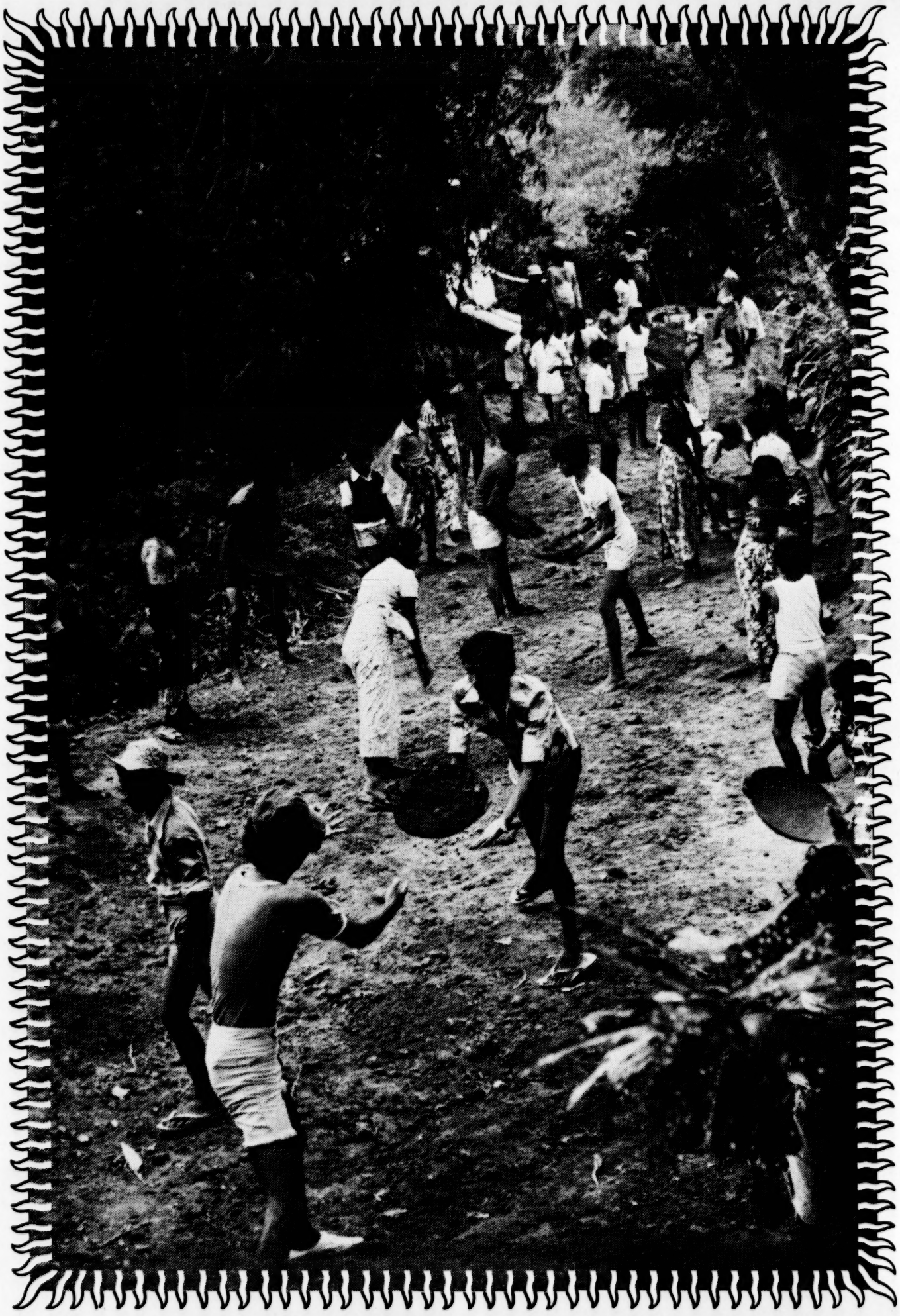
John Knapp's woodfired climbing kiln 1978.



Community

shramadana–



Earth moving, shramadana-style, to cut a jungle road.

giving energy

A Sri Lanka invention good anywhere

by Joanna Rogers Macy

It does not require oil, gas, coal or nukes; it empowers people not machines; it is *shramadana.* Literally meaning the giving (*dana*) of human energy (*shrama*), this source of power is widely used in rural Sri Lanka. In more than two thousand villages over the past twenty-two years that is how roads have been built, irrigation canals dug, markets and meeting halls erected. Note the name: neither the purchase of energy through tariffs, taxes, tolls, nor the forced conscription of human labor, *shramadana* is rather its free gift – *dana* denoting both gift and the virtue of generosity itself, the supreme and most meritorious "perfection" in the ancient Buddhist tradition of this land.

Over the centuries the notion of *dana* had become largely identified with alms-giving to the Sangha or order of Buddhist monks. It was almost forgotten that long before the colonial rulers came with their Western ways, the great irrigation systems that had made of this island the "granary of the East" were constructed and maintained through the voluntary sharing of human energy. This was recalled, however, as a glory of the past that could be reappropriated. Then in 1958 a young Buddhist schoolteacher organized the first *shramadana* work camp in one of the island's poorest, most backward communities.

The campaign launched then by A.T. Ariyaratna and his friends has grown into a national movement for rural development. Sarvodaya Shramadana, its name meaning the "awakening of all" through the "giving of energy," is now the largest non-governmental program in the country. While its activities have branched out into many forms, from preschools and craft centers to alternative marketing schemes, shramadana remains a central feature. The financial aid from foreign countries that has poured in in recent years, affording handsome headquarters, training centers, motor vehicles, has been attracted by the movement's energy on the grass-roots level – a vitality which springs from shramadana and which money cannot buy.

Any day, any week, there will be several shramadana work camps underway around the island – one or two may go on for months but most occur on Sundays, when folks are free from jobs and school. You can cut a two-mile road through the jungle on three Sundays, if you rally enough people. And "people" does not mean just able-bodied men, but children too, and mothers and grandparents, everybody can contribute. If you are not big and strong enough to wield the heavy mammoty or to loosen, lasso and pull over a palm tree, you can rake the dirt or carry the kettle of hot sweet tea that goes the rounds. Except for the elephant borrowed on the first Sunday to haul out the heaviest trees, all the power is people power. There is no roar of bulldozer or drill to compete with the music that blares from the loudspeaker set up in the temple compound – or with the laughter. Toward the temple's open preaching hall pots full of rice and curries, with fresh banana leaves tied on for tops, are carried from each household. Come noon, you leave your tool and converge there with the others for a cooperative meal and the traditional Sarvodaya "family gathering." You can sit then on a straw mat as the hottest part of the day slips by, sharing the curry a neighbor cooked and the songs and prayers and talks which follow.

Then it is back to work to see if we all can finish the section of road as far as the paddy field before we quit until next week's or next month's Sunday shramadana. As you collaborate to lever up some roots, you may find yourself in a team with someone you hardly know. He may be from the other side of the village and from a caste different from yours. But you work together now, learning to know and trust each other's strength; and, as you heard done in the "family gathering" and as you were urged there to do, you call him *malli*, brother.

Shramadana campaigns proved so effective in organizing villagers, that in the mid-60s the government started conducting some of its own. It even

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I have a feeling this idea and this melodious sanskrit word will be turning up all over in the next few years. Shramadana camps in Sri Lanka have increased from 104 in 1974 to over a thousand in 1979. We're grateful to Eric Utne for sending the article and author our way. The piece also will appear in ***Resurgence*** *shortly.* *–SB*

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briefly formed an office of National Shramadana Service. To ensure that people showed up to work and to keep them at it, material rewards were sometimes offered, in cash or kind – perhaps a ration of rice or some powdered milk. According to Sarvodayans they were not very successful. Those camps, they say, lacked both discipline and laughter; people did not sing together or call each other brother and sister; they did not choose the project themselves or take charge of their own work. When the project is one the villagers want – and know they want, having chosen it, additional rewards can be unnecessary and even counterproductive. The two-mile road that will connect the village of Jambureliya to the Colombo road means an hour's less walk to buses and schools, two hours less wait when a doctor must be fetched. That

pond was hot, sweaty, and high-spirited. Ten and twelve-year-olds, including a little girl on my left in a lacy pink party-dress, kept up the pace and younger children raced the empty pans back to the diggers. Young bucks in stylish Sunday bell-bottoms or more sensible in sarongs, showed off a bit, tossing and twirling the pans to each other, while saried ladies in their sixties joined the brigade for shorter spells. So did patients from the hospital and nurses in starched white saris, neither group showing concern for the fresh red soil that would spill on them. To my right I slung the dirt to a public official from the Ministry of Health. Discovering my interest in Buddhist philosophy, he engaged me in a disjointed discussion of the no-self doctrine. "Ah, see," he said, half joking, "with every load of dirt, I wear

Villagers heading out to join a shramadana camp.

meaning can be present in each shovel-load of dirt – along with pride in the doing of it and gratitude for each other.

Last Sunday's shramadana in the hill town of Avissawella was one of a series to clean and beautify the grounds of the district hospital. A committee of long-term patients had asked local Sarvodayans to help them organize an action, get the trash picked up and construct a lotus pond by the front entrance. Unlike cutting a road or digging a canal, this had no economic merit; no one's livelihood or convenience would be benefited – yet the spirit was the same. The long line I joined to pass down the pans of dirt excavated for the

away the illusion of ego." He was also a little annoyed that Sunday visitors to the hospital would watch us without joining in. For me, however, still relatively fresh to shramadana, it was wonder enough that *we* were doing it.

Veteran Sarvodaya organizers say that it is sometimes questionable whether the actual work accomplished in a camp is worth the amount of time, effort and frequent subsidiary costs which are required to set it up. What is considered definitely worth the price, however, are the other results of shramadana. These are manifold and nonmaterial. They are reflected in the Sarvodayan saying, "We build the road and the road builds

us." If the villagers now have a road where there was no road before, they have also that which the road built – a new sense of unity across the caste, class and political barriers that so frequently fracture village life. A widow of forty with three children, having moved here to Markandana two years back, had decided to leave and seek elsewhere to settle. Now, after the village's first shramadana, she and her family choose to stay. They have friends now, she tells me, and it is a better place to be. After shramadana in the village of Galapitemadama, the young people now draw lots each week to select the house where they will work together – fixing the well or repairing the roof.

The road, then, also builds a new sense of power and possibility. This is evident in the local Sarvodaya *haulas* or committees that often constellate in the course of the first shramadana or two – youth committees, elders' committees, or committees of mothers to start a preschool or community kitchen. The collective action combined with the fresh respect it breeds for manual labor can generate a personal commitment to the development of the village that no government programs or foreign aid projects appear able to duplicate. Public reforestation schemes, for example, often founder because villagers neglect the seedlings, let goats and cattle eat them. But when undertaken as shramadana, with the sense of ownership and responsibility that brings, the plants are watered and protected.

With the experience that the Sarvodaya movement has accrued with more than three thousand shramadana camps, and well over a half million participants, certain methods have evolved as most effective for long-term results. Here is how – if you are a Sarvodayan in Sri Lanka – you organize a shramadana.

1. Go to a village and start making a survey of its needs. Go from house to house and then get folks together, say in the temple or in the school, to talk about what they want. Talk till agreement is reached on the choice of an initial project.
2. Contact district government officials to see if they can provide needed material – tools, seeds, truck. They are usually not hard to persuade when you have a lot of free labor to offer.
3. If cement, bricks, elephant, or right-of-way over a piece of land are needed, get the wealthier parties in the village to offer them. In the course of the meetings, to their own surprise and out of competition or desire for good will, they often will.
4. Be sure to involve the local priest. Usually ready to bless so generous an effort, his presence both legitimates and inspires.
5. Meanwhile a local family or two will be taking the lead in organizing the day's collective meal. A mass potluck is always fun and sometimes the start of a com-

Making a rural playground.

munity kitchen, which can make a real difference in awareness of nutrition needs.

6. See which city folk and foreign visitors to Sarvodaya headquarters want to join the shramadana. They often enjoy this contact with village life and in the eyes of the locals their presence – and their actual physical labor – adds lustre to the occasion.
7. When the day comes, start early while it it is cool; this also saves time for the midday and evening "family gatherings." Begin with a brief meeting for meditation and chant. It helps collect the energy that will be given this day.
8. At the family gatherings, as folks relax, speak about the meaning of *dana*, the power of the free gift, the merit of generosity. Remind people they can remake their world out of their own caring and power. Recall for them the glories of the past when Sri Lanka was *Danyagara* and *Dhammadvipa*, granary of wealth and island of righteousness. These can be restored when they work as brother and sister; as you have from the start, you continue, of course, to address them in these terms and treat them in this fashion.
9. Remember to provide in these gatherings both space and encouragement for the participation of the villagers. They enjoy this opportunity to perform for their neighbors in song or dance, which, of course, is great for community spirit; and the experience of giving an impromptu talk on their perception of village needs raises their awareness of their own leadership capacities.
10. When it is all over, stay in close touch – for shramadana is often just the beginning.

It is just the beginning because people have tasted what they can do together – and there is no limit to that. As a visitor from a far-away land I tasted it too. It stirred in me old memories of my grandparents telling about husking bees and barn-raisings, stirred also recent memories of the potlucks and collective gardens we started in upstate New York. In America, too, there was shramadana and there also now the sanity of the past is being reappropriated. Not having seen it, though, on a scale like this, I find myself wondering if we could not move more systematically and full-tilt into the giving of human energy. There is healing, hope and deep community in such sharing, perhaps because, in the last analysis, that is what we are – pure energy. ■

Though shramadana was begun by Buddhists, these Tamil Hindus in northern Sri Lanka are in shramadana to make irrigation ditches.

Personality awakening Techniques . . . . . .

DĀNA IN DIVERSITY

SHRAMA - DANA
- Gift of labour to remove causes of human suffering and deprivation.
- Repair and build tanks (water reservoirs), irrigation canals, wells etc.
- Soil conservation, clearing land for farming.
- Open-up access roads to villages.
- School buildings, toilets, community centres, Rural housing.

BUDDHI - DANA
- Gift of knowledge
- Fradicate illiteracy
- Functional Education
- Development Education
- Library Services.

BHOO - DANA
- Gift of land

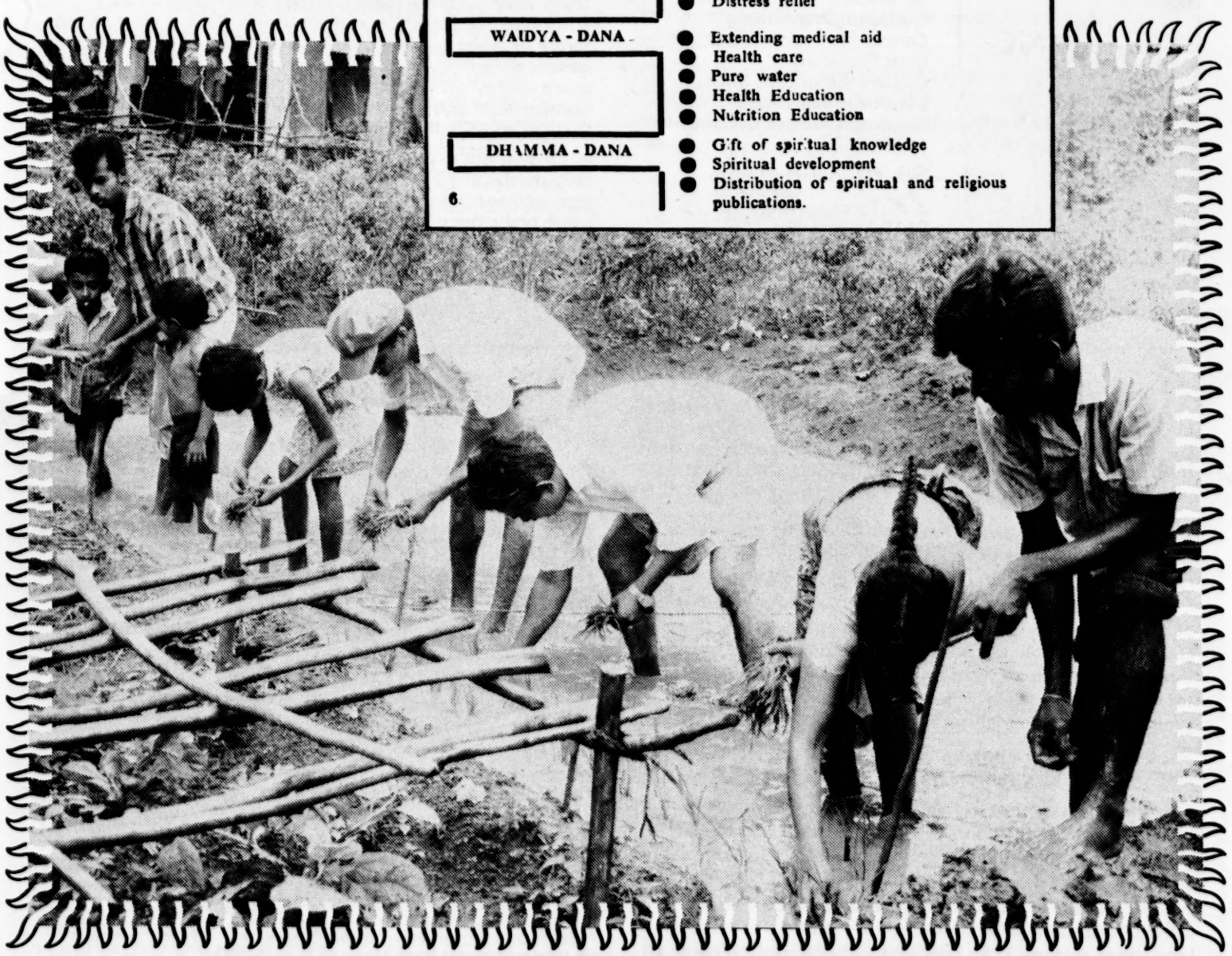
GRAMA - DANA
- Community ownership of land
- Remove landlessness.
- Increase productivity

DHANA - DANA
- Gift of wealth
- Rural credit
- Fair prices
- Distress relief

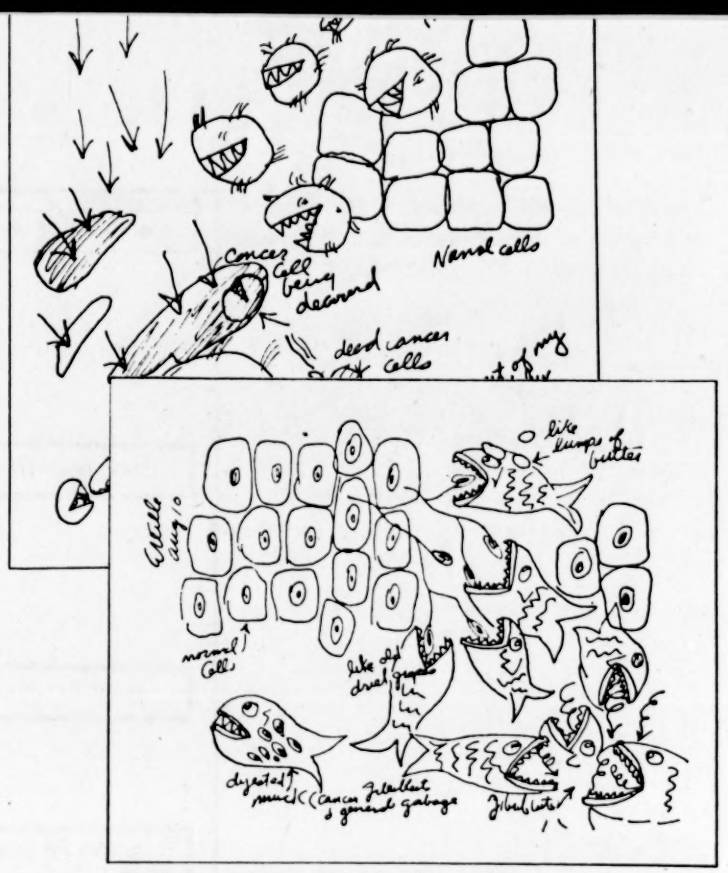
WAIDYA - DANA
- Extending medical aid
- Health care
- Pure water
- Health Education
- Nutrition Education

DHAMMA - DANA
- Gift of spiritual knowledge
- Spiritual development
- Distribution of spiritual and religious publications.

6.



Villagers and friends transplanting rice.



Betty's Initial Imagery, Showing Anger and Hostility.

Betty's Imagery Six Months Later.

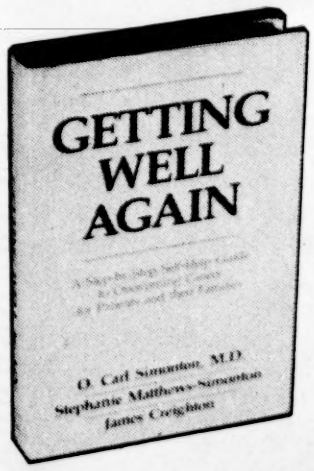
Getting Well Again

Written by a physician and coworkers who believe that an individual's emotional experiences and attitudes have a direct bearing on the course of cancer therapy. In addition to providing the standard medical treatments, these clinicians attempt to influence their clients' attitudes and belief systems through teaching them visualization, relaxation skills, and new ways of dealing with resentment and anger.

As yet there are no controlled studies demonstrating increased longevity as a result of these approaches, but some of the experiences of clinicians and clients using the Simontons' method are striking indeed. It seems clear that at the very least, such an approach offers a way to radically improve the quality of a cancer patient's life.

—Tom Ferguson, M.D.

This is the famous "Simonton imaging technique" that the families and friends of cancer patients are urgently telling each other about. Since many patients are in no shape to read, the Simontons offer an excellent set of cassettes, available from: Cancer Counseling and Research Center, 1300 Summit Ave. — Suite 710, Fort Worth, TX 76102. Phone: (817) 335-4823. —SB



Getting Well Again
(A Step-by-Step, Self-Help Guide to Overcoming Cancer for Patients and their Families)
O. Carl Simonton, M.D., Stephanie Matthews-Simonton, James Creighton
1978; 268 pp.

$9.70 postpaid from:

J. P. Tarcher, Inc.
9110 Sunset Blvd.
Los Angeles, CA 90069

or Whole Earth Household Store

- Picture your body's own white blood cells coming into the area where the cancer is, recognizing the abnormal cells, and destroying them. There is a vast army of white blood cells. They are very strong and aggressive. They are also very smart. There is no contest between them and the cancer cells; they will win the battle.
- Picture the cancer shrinking. See the dead cells being carried away by the white blood cells and being flushed from your body through the liver and kidneys and eliminated in the urine and the stool. This is your expectancy of what you want to happen. Continue to see the cancer shrinking, until it is all gone. See yourself having more energy and a better appetite and being able to feel comfortable and loved in your family as the cancer shrinks and finally disappears.
- If you are experiencing pain anywhere in your body, picture the army of white blood cells flowing into that area and soothing the pain. Whatever the problem, give your body the command to heal itself. Visualize your body becoming well.
- Imagine yourself well, free of disease, full of energy.

Marijuana and cancer

Dear **CQ**,

Maybe you don't want to know this: ah, but knowledge is our friend, so let's proceed. I was recently led, by re-reading and reflecting upon an article in **CQ** No. 21 on the Ames test for mutagenicity,[1] to wonder whether our old pal marijuana is mutagenic (and, therefore, probably carcinogenic). Off I went to the library, and found that, yep, the smoke from one standard (?) 350 mg joint (of unidentified origin) is just about equivalent in mutagenic effect to one high-tar cigarette.[2]

So, if you've been smoking twenty joints a day and feeling paranoid, you now have a good reason.

The good news is that it's only the smoke from the burning leaves that's bad: THC and acetone extracts of leaves are not mutagenic. Eating dope won't, presumably, give you Big C.

Further interesting news: some Swiss researchers have shown that adding Vitamin C at 20 mg per litre to hamster lung tissue cultures both prevents and *reverses* the carcinogenic effects of marijuana smoke — and of tobacco smoke, too. In their discussion, they call for more exploration of the possibility of enhancing resistance to environmental carcinogens, and of " . . . endeavours concerned with reversal of malignant to benign growth".[3]

Food for thought, no? Personally, I'm taking a lot more Vitamin C than I used to!

Sin-C-erely,
Tony Lavender

NOTES

1. Brand, S. (1979). Human Harm to Human DNA. **The CoEvolution Quarterly**, No. 21, Spring, 1979.

2. Busch, F.W., Seid, D.A. and Wei, E.T. (1979). Mutagenic Activity of Marihuana Smoke Condensates. **Cancer Letters**, 6, 319-324.

3. Leuchtenberger, C. and Leuchtenberger, R. (1977). Protection of Hamster Lung Cultures by L-Cysteine or Vitamin C Against Carcinogenic Effects of Fresh Smoke from Tobacco or Marihuana Cigarettes. **British Journal of Experimental Pathology**, 58, 625-634.

The following is a letter printed verbatim from **The California Highway Patrolman** *(February, 1977), sent to us by the editor, Richard York.* —SB

Chase Scene

At approximately 0100 hours on December 12, 1976, Officers Fred Ralph No. 7851 and Gary Patton No. 3879 stopped an obvious "deuce" on southbound SR91 near Green River. The driver was arrested and the officers were discussing what to do with the female passenger who was too drunk to drive or release on her own. A friend of the couple stopped by on his motorcycle and was attempting to volunteer his services to drive both or at least the female passenger to her home.

While discussing these possibilities, the female, who was very unsteady on her feet, sat back down in the passenger side of the suspect vehicle. Before either officer could react, the female slid under the wheel and accelerated away, southbound into Orange County. The arrested deuce was placed in the unit, the motorcycle rider was advised not to follow, and the race was on.

The motorcyclist did not follow directions, but followed the chase at speeeds up to 90 and 100 MPH. He was motioned to back off and repeatedly ordered, via the P.A. to discontinue following them.

Off the freeway, into the City of Anaheim the chase continued, with the unit attempting to pull in front of the suspect vehicle as she stopped at traffic lights, but she was successful in pulling around and eluding the block each time. Until finally, on a narrow street, her only escape was to back up to go around the broadside unit in front of her. Guess who was still following? Right. She backed over the motorcycle. The cyclist was pinned under the car and the motorcycle, and the car's rear wheels were up off the pavement, spinning, due to the motorcycle beneath. This time she couldn't escape. So she did the next best thing, locked her door.

Officer Patton went to the aid of the pinned motorcyclist and Officer Ralph went to apprehend the evasive female driver. Just as he approached her door she rolled the window up. He started for the passenger door, only to see her lean across and lock it.

Now Officer Ralph is a blackbelt karate expert, and no one keeps him out of a car for long. The best and quickest way here, he surmised, was a side of the foot karate kick to the passenger door window. HAAIIYAA! Oops, surprise! The window was down, and officer Ralph kicked himself right inside the vehicle. From his new-found position, Officer Ralph found it very easy to turn off the ignition and unlock the doors.

An Anaheim P.D. Sergeant arrived on the scene and the now arrested female was placed in the rear seat of the Sergeant's unit while the situation was discussed. Later, Officer Ralph stepped inside the Sergeant's vehicle front seat on his knees, facing the female in the rear, to question her. That's when he saw a very strained look on the Anaheim Sergeant's face. He looked down to discover he was kneeling, squishing the Sergeant's hat. Yes, Officer Ralph, some departments still carry those silly things.

Surprisingly the motorcyclist was not injured and was released with a stern warning to stop following cops around or he'd get run over.

The Anaheim Sergeant with the squished hat was apologized to.

The original deuce and the female were both booked for 23102a V.C. (driving under the influence), and the female had the additional charge added of 148 P.C. (leaving a window open in the presence of a Karate kicker).

Jerry W. Lockwood No. 3503
Sergeant
Riverside, California

The Basic Back Book

If you got a back problem, you got a problem. It may take a whole book and some work to straighten it out. This west coast item is rather more than a whole book — too many full-page photos of authors and other self-indulgent irrelevancies — but it will do the job. Anne Kent Rush illustrated **The Massage Book** *(1971), which still leads its field.* —SB

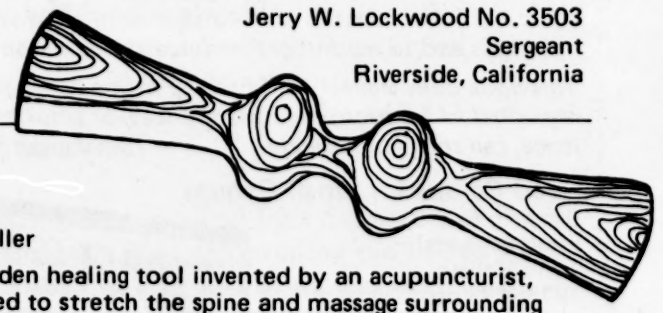
The Basic Back Book
Anne Kent Rush
1979; 288 pp.

$8.95 postpaid from:

Moon Books/
Summit Books
Simon and Schuster
1230 Avenue of
the Americas
New York, NY 10020
or Whole Earth
Household Store

SOME BACK GEAR

Pal-Relax Bar Co., 233 Oak Knoll Rd., Ukiah, CA 95482. The bar is said to be useful in therapy of back pain and tension headaches. It's an exercise bar for your home. Large enough and strong enough to hang upside down from and do exercises. Many converts claim hanging inverted from the hips relieves spinal nerve pressure and realigns the vertebrae. Smaller exercise bars are available at department and sports stores.

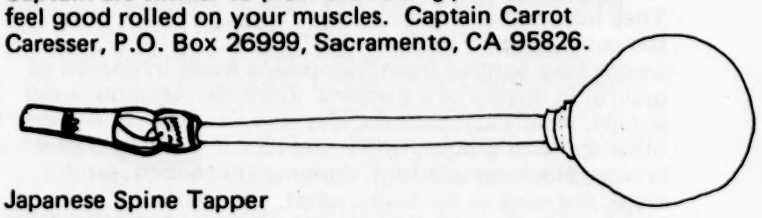


Ma Roller

A wooden healing tool invented by an acupuncturist, designed to stretch the spine and massage surrounding muscles. You roll it over a muscle or lie down on it for massage. Great Earth Healing, Inc., 660 Elm Street, Montpelier, VT 05602; or Great Earth Healing, Ltd., P.O. Box 24, London SW115QF, England.

Captain Carrot Caresser

Built on the same principles as the Ma Roller but better, I think, because it has foam rubber padding to cushion the wood's contact with your body. Both Ma and the Captain are similar to plain old rolling pins which also feel good rolled on your muscles. Captain Carrot Caresser, P.O. Box 26999, Sacramento, CA 95826.



Japanese Spine Tapper

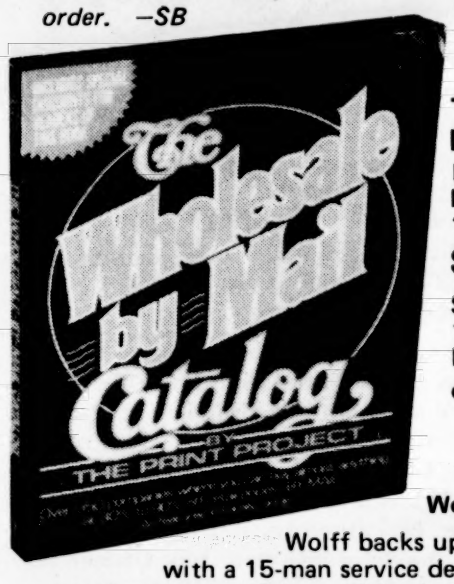
Called a pon-pon, it's a rubber ball on the end of a supple metal stick. Tap yourself or a friend on the back, As the ball bounces, your circulation and energy improve.

Back Balls

Buy pretty colored rubber balls in small sizes (about 4" in diameter) in a dime or toy store. Use them under your neck and to lie and sit on to relax muscles.

The Wholesale by Mail Catalog

Describes 350 sources of mailorder goods 30% to 90% off list price. Nicely done (though graphically dull). We immediately sent for 50 catalogs in our own interest and in the interest of **The Next Whole Earth Catalog.** *The catalogs are now pouring in, proving out the editors' evaluations and reminding us once again of the genuine excitement of life by mail order. —SB*



The Wholesale by Mail Catalog
Lowell Miller, Prudence McCullough
1979; 203 pp.
$5.95 postpaid from:
St. Martin's Press, Inc.
175 Fifth Avenue
New York, NY 10010
or Whole Earth Household Store

Wolff Office Equipment

Wolff backs up the goods they sell with a 15-man service department that does complete repairs. They sell typewriters, calculators, dictating machines, telephone answering machines, and office furniture. Some of the brands they carry include SCM, Olivetti, Olympia, Royal-Adler, Remington, IBM (rebuilt), Sharp, Hewlitt-Packard, Texas Instruments, Victor, Phillips-Norelco, Sanyo, and Phone Mate. They have a large selection of office furniture by Steelmaster, Cole, and other leading manufacturers. They do price quotes, and also have a free price list — just write or call.

Wolff Office Equipment
1841 Broadway
New York, NY 10023
(212) 581-9080
Price List: free
Discount: 20 to 50%
Goods: name brand
Minimum Order: none
Shipping, Handling, Insurance: extra, UPS or FOB New York City
Guarantee: by manufacturer
Payment: MO, MC, Visa, AC, DC
$$$$

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Freeport Music

Freeport has been in business since 1921 and will probably be here in 2021 because you can't beat great prices and a good selection. There are Ludwig drums at 40%-off list, drums by Pearl, Slinger Land, Earth amps and mixers, electronic equipment made by Fender, Marshall, Kingston, Marlboro, Morley, and Shadow, Shure mikes, Seth Thomas and Franz metronomes, etc. There are also guitars and accessories by Martin, Fender, Gibson, Guild, Ovation, and Yamaha. Freeport carries Olds brass instruments, Leigh woodwind accessories. Benge brass, Armstrong flutes, Arp electronics, Hohner harmonicas, and disco lighting and stage effects for rock groups. They also have good buys on used instruments and coupon "specials" — don't buy an instrument or another set of strings before you get this catalog.

Freeport Music
114K Mahan St.
W. Babylon, NY 11704
(516) 643-8081
Catalog: $1
Discount: 30 to 60%
Goods: name brand
Minimum Order: $25 on charges
Shipping: extra
Sales Tax: NY residents
Guarantee: defective goods replaced or refunded
Payment: check, MO, MC, Visa, AE, CB, DC
$$$$

Food Co-ops for Small Groups

How to bypass the supermarket and buy food direct from farmers and wholesalers. Joining or organizing a food co-op has other benefits too — a chance to meet your neighbors and to work together toward a common goal.

This book does a good job of telling how a small group, regardless of location, food preferences, or prior experience, can start and operate. —Tom Ferguson, M.D.

Food Co-ops for Small Groups
(How to Buy Better Food for Less)
Tony Vellela
1975; 173 pp.
$2.95 postpaid from:
Workman Pub. Co., Inc.
1 W. 39th St.
New York, NY 10018
or Whole Earth Household Store

Locating the people you need is easier than it seems. They need not all be from the same group. Food co-ops have formed from friendships made in dozens of groups, in dozens of situations. Consider neighborhood groups, tenant associations, day care centers, church or other spiritual groups, office and factory workers, PTA groups, block associations, community centers, service clubs, the gang at the laundromat, the regulars at the health food restaurant, the area chapter of NOW, members of the union local — any of these groups can be sources for your food co-op's membership.

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Trading time for money is the essence of co-operative buying. A trade-off is made between one "thing" that has worth (your time that you volunteer) in place of another "thing" that has worth (your money that you pay).

Each initial and subsequent member of a co-op must be willing to exchange volunteer labor for savings in money. To accept someone into the group who is unwilling to assume an equal share of the work is suicidal for the co-op. Don't invite friends or relatives to work on creating the co-op if you have seen evidence of their tendency to bypass work, either on the job, in the neighborhood, or in a community group they belong to in name only.

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The Yellow Pages list wholesale food distributors in all areas under such headings as:

Bakers Suppliers
Bakers — Wholesale
Dairy Products Brokers
Eggs, Cheese, Butter
Food Brokers
Food Products — Mfrs. & Distrs.
Fruits and Vegetables — Wholesale
Grocers — Wholesale
Health Food Products — Wholesalers/Manufacturers
Meat, Wholesale
Milk and Milk Products
Natural Foods
Nuts, Edible — Wholesale
Oils, Vegetable
Poultry — Wholesale
Restaurant Purveyors
Sugar Brokers & Wholesalers

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Finally, a very, very important and wise consideration: make every effort to contact area farmers directly. Your local or regional branch office of the Department of Agriculture might help. Or else post a sign at stores where farmers would shop for supplies; ask regional 4-H Club leaders for help; Future Farmers of America might supply some names. Dealing with farmers would give them a friendly, direct market and give you a friendly, minimal markup. You'd be supporting a small operation which may be facing the threat of losing its holdings if forced to accept corporate prices for crops; by selling to people close by, the farmer could get a price higher than the corporate price, and the co-op could get a price lower than the wholesale price. And you'd know exactly where some of your food is coming from.

PET HATE

(A new department for a while for **CQ**. Send in your true stories – get $25 if published.)

PAGES FROM THE JOURNAL OF A CHIHUAHUA HATER *by J. Baldwin*

These stories are true. I've heard it said that the Chihuahua, along with the Cockapoo and the (heaven forfend) Pekapoo, are proof enough that there is no God, at least no God I'd want to have anything to do with.

AT THE TIME we were living in a tent, illegally, of course, in the back yard of a friend's home in Mill Valley, California. Next door the people had a large German shepherd and a Chihuahua. During the day the German shepherd patrolled the fenced yard, guarding an antique pickup awaiting restoration. He was a typical junkyard dog – quiet until a potential fence climber sent him into a paroxysm of noisy hatred. But the Chihuahua was another matter. It apparently spent the day indoors performing whatever it is people require of such beasts. At night the little darling was banished to the backyard with the shepherd. As soon as the sun went down, it started a continuous, monotonous "*Yeek*, yik-yik"; (count five seconds) "*Yeek*, yik-yik," over and over with the perfect regularity of a quartz watch. The big dog paid no attention. Neither did the owners whose bedroom was on the front of the house. *We* noticed. The piercing, slightly frantic yip, always in the same form, always the same loudness, always the same timing, was just loud enough to make sleep a travesty, and just enraging enough to raise our adrenalin to a point where canine-induced insomnia prevailed.

We thought of poison, but there were other pets around, not to mention children. We considered outright murder, but accomplishing such a thing without a gunshot or the incriminating residual evidence of a trap (or waking the shepherd) made this difficult. Then a friend suggested shooting our tormentor with a slingshot. "Stand downwind," he advised. "The bastard won't be able to smell you there, and if you manage to hit it, instinct will cause it to keep quiet so as to avoid further hurt." That very night, I crept up to the fence armed with a borrowed Wrist-Rocket and some half-inch marbles. The wind was right. The big dog slept. The yips of my prey covered any flaws in my stealth. My heart beat with guilty joy as I pulled the rubbers back a full five feet, aimed, and fired. And missed! The marble bounced off the ground near the animal and hit the side of the house with a loud whack! But nobody stirred, and the Chihuahua continued with only a slight one-beat pause at the sound. I fired again and was rewarded by a shriek followed by a few wails and . . . silence. Heh heh heh. It took one more mission to accomplish a permanent cure, and thereafter we slept in peace.

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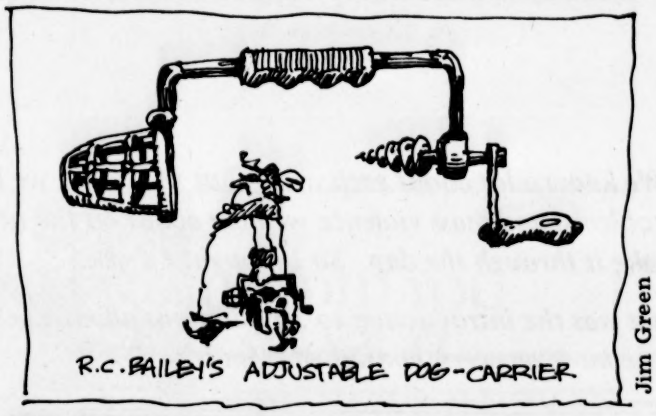

DENNIS BLACK, age 20, 180 lbs. more or less, was sacking in that morning having flown all the way from Ann Arbor to San Diego for the holiday. About 11 the phone rang. His mother answered it and experienced a little difficulty hearing the name above the din raised by her Chihuahua, Pepe, who always helped her answer the phone. It proved to be Dennis's local girlfriend, Jan. "Dennis!" his mother called up the stairs, "It's Jan!" "Yeekyeekyeek, *yeekyeek*!" added Pepe. No answer. "Just a minute, Jan," she said into the phone, "I'll get him." She walked quickly up the shallow steps to the upper level and pushed open the bedroom door. Dennis was fast asleep on the top bunk of the double decker he'd shared with his brother David for 15 years. "Dennis yeekyeekyeek it's *yeekyeek* the yeek phone yeeeeek yeek yeek yeekeeek yeeeeeek yeeeeek yeek it's yeek Jan, yeek, yeek, I'll tell her yeek (Pepe shush!) yeek Pepe! *yeek* shut *up* a minute I'm tryin' to talk! Yeekyeekyeek you'll be right yeek there *yeekyeek*. Dennis suddenly was awake, realized who was calling him, and flung his legs over the side of the bunk, forgetting he was in an upper. He thumped heavily to the floor, recovered, and hurried down to the phone. "Hi Jan," he said breathlessly . . . how are you?" By this time he had become vaguely aware that the yeeking had been replaced by wails of despair from his mother and sister. He quickly replayed the events of the past few minutes and added up the score. "I'll be right over," he said, "soon as I get dressed."

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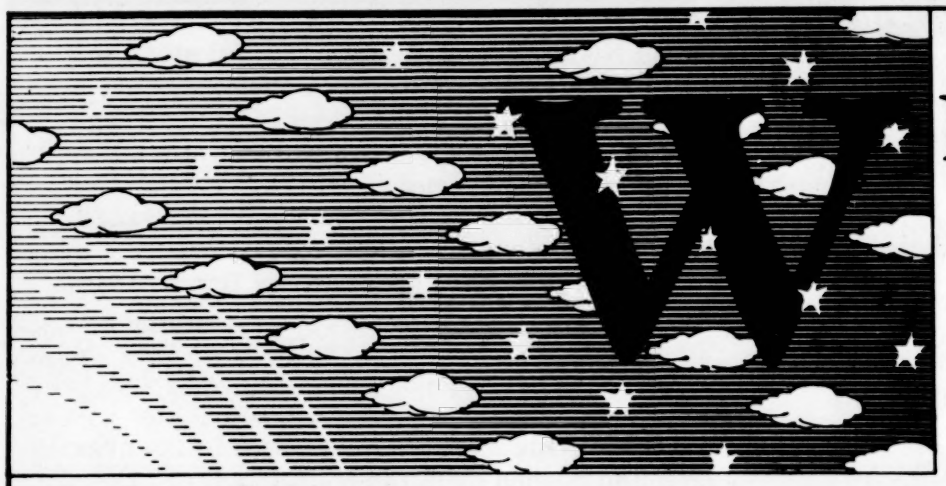
ONE DAY we walked by a dark-colored Ford Pinto parked in the broiling sun in San Jose, California. The windows of the car were rolled up all the way, attenuating the shrieking of an imprisoned Chihuahua and making it sound far away. As we approached the car, the yipping accelerated from kilohertz to megahertz. The infuriated critter scratched at the glass, clawed the upholstery, and began to ricochet around the inside of the Pinto so fast that it became difficult to see him. The yeeking took on the character of a dull hand saw cutting thin sheet metal. Occasionally the dog would lose control and fall to the floor belly up, but he always flipped over and bounded back up to the seatback and resumed the tirade. It must have been 110° that day, and Kathleen said, "Let's see if he'll burn out." So we stood there innocently as the dog continued with its tantrum. After maybe ten minutes of this, an aged Chicano came up to us. "You'll never wear him out," he said. "In Mexico it's very hot. They're used to it. He could keep it up for days." As we walked away together we could still hear the yeeking faintly. It hadn't slowed, even a little. ■

"We know a lot about each other, but the things we know are too big. Major trends, widespread problems, and mass violence we hear about on the news, but it's hard to find out how other people make it through the day. So I thought I'd ask."

That was the introduction to 30 questions about the small things in life I asked in issue 17. Here are some more answers, continued from issue 23. *–Anne Herbert*



WHEN DID YOU SEE THE SUNRISE?

Illuminated by Kathleen O'Neill

Collected by Anne Herbert

I see the sunrise every morn as I go out to the barn. In the winter when it came up much later I would see it as I came back from the barn.

Kathy Van Peski,
18, farmer,
Worthington, Massachusetts

I live in a valley. My last sunrise was on Abaco, Bahamas, to see the green flash. I believe I did.

George Stevenson,
writer, homesteader,
Tazewell, Tennessee

It was a long time ago. I'd be lying if I said I remember.

Bobbie Buddah,
male, 30, grows
grapes experimentally
Fitch Mountain, California

When I went to have my Military physical. We drove, nothing in particular happened.

Man,
student, 17
Norway, Iowa

There is no actual sunrise from early May to mid-July. It sets but it doesn't get dark.

Sharon – In early February, the first sunrise I could see skiing into work – the whole sky lit up pink.

Stephanie – For me it's a similar time – skiing to work the sun came up behind the mountains and steamed in through the birch trees.

Sun is special to us and a sunrise on the way to work (the first since late October) means the long dark winter is over.

Sharon Frost and
Stephanie Fox,
Fairbanks, Alaska

Most every sunrise I see due to my mother's teachings.

Carlie Rita Ben-Shalom,
44, process server
Phoenix, Arizona

This morning when I woke I was at my window because I wanted to see how it was outside.

Lyndon Elam,
Student, Central High
Grand Rapids, Michigan

Prom last year. We stayed up and partied all night.

Woman,
high school student,
Mandville, Louisiana

When we got up about 4:30 for detassling. The leaves were still wet until the sun was up and dried off the leaves. We detassled while it was coming up until it was about ready to go back down again.

Carol Brockschink,
age 17, high school student,
Norway, Iowa

On the schoolbus on the way to school. I was there simply because I had to go to school. At sunrise I just feel as if the world is new and I'm changing with it. As if we are all one.

Jessica Mitcham
12, student
New Hope, Kentucky

I skipped seeing the sunrise over Lake Superior when I was on Outward Bound because the instructors weren't around to get us out of those orange nylon tents, and I've been running in the morning when the sun was just below the Green Mountains and making the whole horizon glow and even hung around for five minutes afterwards to see it come up, but just didn't bother. I've never seen one. To tell the truth, I don't really mind either. Probably because sunsets always burn my eyes.

Eric Sorenson
20, student in English and
environmental studies
Martinsville, New Jersey

I saw the sunrise when I was young on the glacier. My father's research station was on a ridge which divided the Pacific from the Cascades. (At least in a young child's mind.) The sun would rise and stream like the smoke of the hot chocolate I drank. The glacier would ripple in the light, with the suncups frozen hard by the night. I would walk out on the sharp shale in my bare feet, on the way to the privy in the generator shack. Always I felt good, when I saw the sun and I was glad to be alive. A cliche but it was ture.

Randy La Chapelle,
sometimes carpentry,
sometimes day care,
sometimes rubbish hauling
Kirkland, Washington
(This is his answer to what do they do where you grew up – "The ice worms mate and live off algae, blown on the wind from the sea. The occasional birds come from the forest below and only stay a while in the mountain air.")

I saw the sunrise on my way to work in 1974. That's not the last time I've seen it, but it's the best lately. For two days in a row the clouds were incredible. I got to school and I didn't want to go in. When I went into the office to sign in, I wanted to sweep the clerk and the secretary up in my euphoria,

but it didn't work out that way. They were just pleasant and cheerful and preoccupied with the details of beginning a day's work. I had to wait until I could talk to Bruce, my 14-year-old, in the evenings before I found someone who'd liked the sunrise as much as I did.

When Sol, my husband, was going to S.F. State from San Jose one summer I got myself out of bed early a few times, packed up all four kids and went along, to spend the day with them at the zoo, the beach, or the park. We saw the sun rise as we drove up along 101, with the air so cool and light.

Our family went to England from Shanghai in 1936. I was 6 and my sister Helen was 9½. We sailed on the Gneisenau in January and came back in December on the Potsdam because the NorDeutsche Lloyd Line had a great family rate that year. Sometimes my sister would drag me out of bed when it first got light and make me get dressed. Then we went up top and watched the sunrise while we walked around and around the deck in the breeze. The crew were swabbing the decks and setting the tables in the dining room. Only one or two other passengers were up. Some mornings we could see land, just a stripe on the horizon or a whole town on nearby land, with sun beginning to shine on the rooftops and windows, pink on the windows and white on the roofs.

Sunrise, or foggy dawn at least, in Manila '42, January 3 or so, in Santo Tomas University, with hundreds of us lining up, milling around the front driveway and lawn near the main building, waiting for Red Cross coffee and doughnuts, shivering and wondering what was going to happen.

Sunrise three years later, February 24, 1945, the morning after we were liberated from Los Banos Internment Camp, lying on two skinny boards on an upper bunk in Muntinlupa Prison, feeling the breeze through the window, seeing the clear rosy sky, remembering we were free.

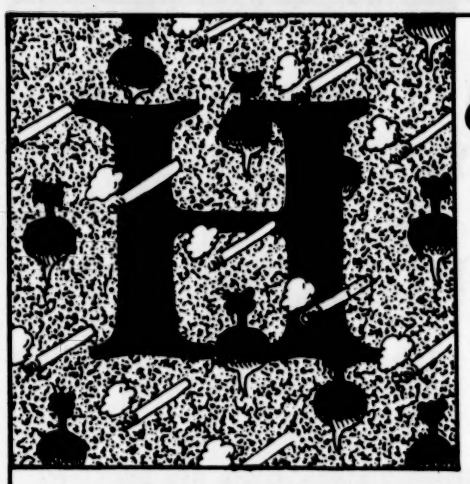
Dottie Horn, 48,
kindergarten teacher (now laid off),
East San Jose, California

Once quite a few years ago. I was there because we were up early to go to Mardi Gras. I thought it was beautiful and it moved me.

High school student,
Louisiana

February 4, was spending the night with a friend in Slidell, we stayed up all night; I went to early church.

High school student,
Louisiana



OW DID YOU MAKE IT THROUGH THE BAD TIME ?

I made it through the worst of the bad time living as a vegetable; life at a very low level but life nonetheless. Later on I became more human and added my own desire for change. I kept a journal too.

Becky Narva, 27,
householder, former
editorial assistant,
Philadelphia, Pennsylvania

I lied a lot, burned myself with cigarettes, and when the remorse was past, got angry with the help of *Gestalt Therapy*, made up private fairy tales.

Woman, 32,
writer,
New York, New York

By eating and watching television and drawing pictures. Sometimes curling up in bed and pulling the covers over my head, or taking long hot baths even if I had already taken one earlier.

Randy LaChappelle,
Kirkland, Washington

I cracked up. I went to a doctor for help. When I got tired of being unable to cope, I got better.

Helen Caivano,
Bar Harbor, Maine

Sorry, no time's that bad.

Tom Turner,
Berkeley, California

HAT DO THEY DO WHERE YOU GREW UP ?

Make all the engines for Chevrolet, drink beer, and tell racial jokes. (Some exceptions.)

M.T. Coleman, 36
Ganges, B.C. Canada

They commute to Philadelphia.

Alison Chiaken,
high school student,
Pennsylvania

Build rockets, mow lawns, cook dinner, study, walk the dog, rake the leaves, write screenplays, prepare briefs, make the bed, put out the garbage, assemble the hobby radio, have a drink, get MAD are afraid-but won't mention it, have a bar B que, talk on the phone, pull out the car and wash down the driveway with the hose, remodel, go to an evening meeting, read the paper, play baseball in the street, go out for lunch, read comic books, fuck, masterbate, go out at night, watch T.V., go on vacation.

Bobbie Buddah,
male, 30
Fitch Mountain, California

Gossip.

Woman,
high school,
Louisiana

WHAT STORIES DO YOU KNOW ABOUT WORKING IN A FACTORY ?

It's backbreaking work and it pays to have an education.

Lori Brecht,
high school student,
Norway, Iowa

Tennis shoe factory people smell like rubber.

Baumgardner,
Tonasket, Washington

. . . when my brother started working at a wire factory, the man who was showing how to operate the machine chopped his own fingers off.

Stephanie Fox,
Alaska

The mill whistle just blew. Mostly I hear about the gossip they talk about or how drunk they got after night shift and ended up in some strange guy's bed or the bullshit that's going on with seniority or something. You have to really dig to find out about the actual work.

Woman, 31,
bookkeeper,
Oregon

I remember getting into a rhythm with a bone crushing steel bending, multi-ton press. I started dancing with it, a transcendent experience.

Joseph,
South Dakota

For awhile I worked in a toy and game factory near Cotati. The crew was made up of freaks and Mexicans. The freaks came and went, never staying long enough for good raises, and the Mexicans were there forever and made the best money, which was only righteous because they had to work the sanding machines. In the dip room where the stain tanks were we had a battered stereo and a collection of discard records. We'd play these to get the edge on the monotony and general drag of having to work, and it did increase production – a side of Chicago and a Coca-Cola can really put the zip into staining thousands of digital thermometer bases. There were a few records that never got played, so I had to check them out. One was a Johnny Cash album "Bitter Tears," which was songs about American Indians. The songs were about how the Indians in Pennsylvania got fucked by a dam on their reservation, about how Indian war heroes came home to be ignored and die drunk in the gutter, about how young Indians falling in love with rich white girls got screwed there too, and so on. One day I looked for the record and it wasn't there. A worker told me that Martin, one of the Mexicans, was an Indian and that he'd come running in the other day and ripped the record off the turntable, broke it in half and threw if out the window. Martin told him, "Johnny Cash doesn't know a goddamn thing about Indians."

Jay Williamson, 30,
cuts firewood for money

WHAT DOES YOUR MOTHER DO ALL DAY ? WHAT DOES YOUR FATHER DO ALL DAY ?

He's an attorney. He screams a lot, talks on the phone, takes long lunch hours, sees clients. My mother is a mother. All day she either sleeps, cooks, or watches T.V. She cleans up at night.

Woman high
school student, 16
Lacombe, Louisiana

My father tended to his country store. My mother fed, clothed, cared for us, gardened, baked bread, helped Poppa in the bar.

Ina Hicks, 48,
Friendsville, Maryland

My mother who died in '46 spent her life fighting dirt, hunger and the effects of friction on clothes and bemoaning the fact that she was not born a man. For diversion she drank, fought with her family and neighbor and went to Mass on Sunday. She was a loving woman.

William Corr
Seattle, Washington

My mother sells real estate. She smiles and talks and is fake. And comes home and is a bitch again.

Woman, 17,
Louisiana

Father – Drive around Los Angeles. Drive around Los Angeles. Sorry to be redundant, but this is what he did when he worked and does now as enjoyment other than working around the house and yard. A very successful and healthy person of 73.

Mother – Keeps books for a small company she formed. She kept books for my father's business previously.

Baumgardner
Tonasket, Washington

My mother wears business suits as endorsed by *Dress for Success*. She thinks, sometimes, that I try to look poor. (Usually my clothes feel "rich," as if they have lots of power and attention in them.) She goes to meetings for political candidates and NOW – she came alive after a long slump a few years ago when she "joined the women's movement," and it fills her up, gives her energy, and brings friendship. Once there was a meeting in the house – they ate Munchkins and blue cheese and I listened. It reminded me of a grammar school committee meeting when we were to do a "group

project." It doesn't really matter what the topic is, or even the result, the process and the interaction are valuable aspects. But I think they would all disagree – my mother thinks laws help people and that her group can help a lot of people. I know this is true because it has helped her but despite my ignorance of political science, I also suspect that this fervently directed movement necessarily creates a counter-movement.

Woman college student,
Florida

My father was a commissioner and director in the Chinese Post Office. He worked in an office in various cities and towns around China, a few years in each place. He died in 1941.

My mother spent the years between 1920 and 1941 in China, being a wife and mother in all those outposts and cities. She shared taking care of 4 daughters with a Chinese amah. She didn't do much housework because the Chinese government supplied us with various numbers of servants (2 or three in Shanghai, 17 in Kunming, all opium smokers. Eight of those 17 were chair-bearers, still on the payroll from the 1900s when they had sedan chairs.) My mother knitted, wrote letters and stories, talked to friends, played Brahms and Chopin on the piano, and read a lot. I think she spent a lot of her time taking care of sick people in our family. In some of the towns where we lived medical help was hard to get, so she learned to be her own diagnostician and doctor. My father had ulcers, and my sister had a brain tumor for 5 years, was operated on and was blind from then on. She had to live in England and died in a traffic accident at the end of the war, so my mother's life had a lot of misery in it.

Dottie Horn, 48,
kindergarten teacher,
East San Jose, California

As she puts it . . . "Pound up and down behind the counter and ladder at the (liquor) store sixty hours a week." In the South Bronx.

Anonymous
New York, New York

My mother is a county probation officer all day. She talks to all kinds of law-related people, from state's attorneys to 12-year-old tire slashers. She is on the phone a lot, smokes many cigarettes, and drives people to reformatories and 'half-way houses'. (I don't mean drive them as in "drive them crazy.") She used to be an insurance secretary. She smoked even more cigarettes then, and played office politics. She typed and worried from 9 to 5. After 5 she just worried and took night courses so she wouldn't have to be a secretary any more.

Kelly Booth, 21,
mother, wife,
housepainter,
Manitou Springs, Colorado

WHAT HAS A CHILD TOLD YOU LATELY?

"I got a new baby brother and now there's more boys than girls. Ha Ha."

Connie Kahle, 17,
high school student,
Norway, Iowa

Alexia told me about a man she'd seen with a dirty face "all waxy."

Philip Stewart,
Forestry Lecturer,
Oxford, England

That cartwheels are easy. They seem to be, for her.

George B. Stevenson,
writer, homesteader,
Tazewell, Tennessee

That all the guys in the 7th grade think I'm a Fox.

Jennifer Scott, 18,
high school student,
Norway, Iowa

Bo told me this morning that he's almost never really happy. He just pretend smiles, he said. Then he grinned and climbed up the gate. (He's 4. He's been kind of sad for a while – maybe since our baby was born – three months ago.)

He also told me that this common road sign means WATCH OUT FOR WORMS.

Bo's fond of bugs.

The other night I was reading a strange Bible book some people brought to the door. It was bedtime reading. I read something about God will bring "peace and happiness and prosperity to earth."

Vida said – "We *already* have that."

Bo said – "Not on *my* bus we don't." (He takes a bus to school.)

Vida is 7 – almost 8.

Candra Day, 30
homemaker, writer
Mill Valley, California

The part of our bodies which most resemble a snake is our weanies.

Randy LaChappelle
Kirkland, Washington

The other day a little girl and a tiny boy rang my doorbell and when I answered it they told me that someone told them that there is a big black retriever loose in the neighborhood who eats small dogs and so I should bring my dog Cheri inside – they knew my dog and her name though not me. I thanked them and called Cheri to come in.

Ina Hicks, 48,
Friendsville, Maryland

This morning I was telling Ian that he should try shortening the tail on his kite. (He's a first grader.) He proceeded to lecture me on kite stability. Sometimes he gets impatient with my ignorance.

C.E. Mabbott, 22,
West Fork, Michigan

Children don't tell me much.

Marc Bauman, 25,
teacher of college
broadcast courses,
New York, New York

Once a twelve year old boy, the son of a friend, told me that it felt "soft and vulnerable" to be twelve. I had forgotten . . .

Bill Palmer, 29,
manager, National
Jogging Association,
Alexandria, Virginia

HEN DID YOU HAVE A GOOD TIME SINGING ? WHO WERE YOU SINGING WITH ? WHO TO ?

I don't remember when I had fun singing, 'cause I can't sing too well. I was singing with some friends and they told me to shut up.

Deb Bergen,
high school student, 18,
Norway, Iowa

I have a good time singing with the radio, making up arpeggios. I have a good time singing with Jody, counting our toes.

Kathy Stilwell,
33, mother, writer
Iowa

At the Swing Choir Concert, when the girls sang "Big Spender." We had all kinds of old men and teachers and we really worked them over. It was really hilarious.

Lori Brecht,
high school student,
Norway, Iowa

My sister and I were driving through the mountains from Denver to Steamboat Springs. We started singing songs from Broadway musicals (Some Enchanted Evening, I Could Have Danced All Night, The Sound of Music, etc.) We had just been East helping my grandmother move from her house to an apartment – seen 80 years packed with the boxes. Some to go with her, some to share with us. I must have been filled with a profound sense of time and the quality of life. All her things were beautiful and beautifully kept. It made me proud. Anyhow, my sister and I started singing what I consider now to be rather corny and taboo songs. But we grew up with musicals and knew them all by heart. The more we sang the more emotional I became until my voice faltered and I was singing as tears ran down my face. I kept on singing. I think my sister was scared and touched by how much those songs meant to me – as though our voices together validated an entire childhood. Somehow, it was all connected to old and new – to my grandmother's moving and us returning to our semi-hip/alternative life in the Rocky Mountains.

Helen Caivano, 30,
Bar Harbor, Maine

With my mother, singing, "Lo, How a Rose E'er Blooming" in two-part harmony every Christmas as a child. By a pond, in tall grass, at night, to a boy I liked, in college: "Buy'd me a little dog, colored it was brown." At a gathering in a rival friend's apartment, to a stranger's guitar: "Dodi Li," an Israeli folk song. I had been feeling silent and excluded, and suddenly I had a strange clear voice, strange to me, and everyone was looking at me as if I were in a spotlight of sound. On a road in Florida, alone at night: "I wonder as I wander, out under the sky ..." Every time I see the Big Dipper: "Follow the drinkin' gourd."

Woman,
32, writer,
New York, New York

Last X-mas at the Psychidelly (night club), a progressive rock group (Bill Holland and the Rents Due) was playing; they invited the audience (all 10 of us) up onto the stage to sing X-mas carols. We had a pretty good time entertaining ourselves.

Woman,
systems analyst,
Chevy Chase, Maryland

HAT IS SOMETHING YOU KNOW A LOT ABOUT ?

The subject I love best is baseball. I don't know why I love it so much. I started to like it in a funny way – I made an effort to learn about it because I thought it would give me something to talk about with boys. This was part of a conscious effort I made about three years ago to like cars, football, soccer, running, even *Mad* magazine. Strangely enough, I discovered that I actually liked all of these but *Mad*, cars, and football, and that baseball is something very special. Since then, I've read many baseball books, memorized pages of statistics, kept score of an average of 30 games a season down to the last pitch, and learned more about the Grand Old Game than any boy I've ever met. I'm still a Dodgers fan, which is a very unpopular thing to be right now in the Philadelphia area.

Some stories I love: that of Mel Gray, the one-armed St. Louis outfielder, that of Ron LeFlore, one of the best players in the game today, who had never played before he learned while in prison 4 years ago; and that of Dizzy Dean, who pitched a two-hitter in the first game of a doubleheader, and who said, after his brother Paul pitched a no-hitter in the second game, "If Ida known Paul was gonna pitch a no-hitter, Ida pitched one too."

Alison Chiaken,
high school student,
Pennsylvania

I moved to the Florida keys in 1950, and became interested in the trees. Couldn't find anyone who knew the names for more than five or six, and the one book (Small's **Flora of the Florida Keys**) was written (in 1910) in botanese. Learned that language, tramped the keys until I had found all the species still present, and wrote them up in a handbook that has fueled the conservation movement in that area.

George R. Stevenson
writer, homesteader
Tazewell, Tennessee

WHAT IS A TIME IN YOUR CHILDHOOD YOU'D LIKE TO LIVE THROUGH AGAIN?

Climbing a tree – I could see all over the neighborhood. It felt good to be so high up, to feel the wind and to be climbing up and down.

Stephanie Fox,
historian for
Bureau of Land Management,
Fairbanks, Alaska

I wouldn't like to live through any of my childhood again unless I was 1 or 2, – those were the most oblivious years.

Woman, 16,
student,
Slidell, Louisiana

Searching, with my friend Steve, under the bridge over the wash for black widows. Cars roaring overhead. Dark and dusty under the cement supports. Eroded gullies of red crumbly earth with webs. Excited and scared as spider comes climbing on the stick, and scurry to get her in a jar for school. Just Steve and I know where we got her. Look underneath the jar and see the red hourglass on the silky black abdomen.

Bobbie Buddah,
male, 30, grows
grapes experimentally
Fitch Mountain, California

When I'd go to the college bookstore near where we lived and think when I was 18 I'd be able to read all those books and understand them and know everything. Also, at 18 I could go to classes at different times during the day instead of all the time and in between classes, instead of recess and turning the jumprope, I could go to the bookstore. Every time I went to the bookstore, back then, I would choose the perfect notebook for later when I was going to be a writer and every once in a while I'd save up and buy the latest perfect notebook. I never wrote very much in them because I wasn't a writer yet.

Anne Herbert, 29
writer
Berkeley, California

I don't know how old I was. I used to go into a short hall we had, close all the five doors that led into it, and stuff towels or clothing under the bottom of each. It was perfectly black. I could walk up and down and touch nothing on all sides. I learned Darkness, and not to fear it (alone). In summers, I would make a tent of inverted butterfly chairs covered with heavy moving pads and lie there when the sun was hottest, and learned Warmth, and relished it. I dressed per the weather, scant in cold and wind, and overdressed in sun.

Meredith Foyle,
female, farming,
Cartogo, Colombia

Building a snowman.

Sharon Frost,
biological technician,
Fairbanks, Alaska

When I was six years old, two bad things happened in my world. My father's ulcerated stomach was operated on and Dade County was striken with fear because of an epidemic of poliomyelitis. My brothers, step-brother, and I were withdrawn from school. We left our home in Coral Gables and moved (with my father and stepmother) to an apartment in Miami Beach. Dad was supposed to recuperate and we were guaranteed safe passage through this most frightening of all the crises faced by youngsters in those times. It was during this year that I came to be on intimate terms with the ocean and the many life forms it supports. I saw stone crabs, blue crabs, moray eels, cary fish, bonefish, snappers, ponpans, groupers, grunts, sailors' choice and minute crustacea and fish which inhabit seaweed. While it wasn't all skittles and beer, by a long shot, it was mostly pleasant and exciting. What's more, we *needed* those damned fish, for food. A dime's worth of shrimp for bait bought a meal for five people.

Tom,
Maryland

WHAT DO YOU DO THAT MAKES YOU TIRED ?

My job makes me tired, but I love doing it. I don't know why I put "but" there. I don't think it's bad to get tired. I teach kindergarten to 30 kids in the morning, 28 or so in the afternoon. On some days there's a big discrepancy between my level of spirits and the children's. Sometimes it's caused by the weather (windy days are awful, and so are some stormy ones), sometimes it's because we're leading up to or away from a holiday, and sometimes it's stuff going on in me. I can see that what I call "tired" isn't all the same feeling. Sometimes a piece of me retreats from the classroom and starts on home early, and the children know it in a second. That's when the children I have a hard time with do their stuff the most.

Dotti Horn, 48,
kindergarten teacher
(now laid off),
East San Jose

I smoke cigarettes, which makes me very tired. I don't like doing it. I have a hard time stopping doing it. Some say it's the white man's karma for stealing America.

Steven, Richmond,
Victoria, Australia

WHAT DID YOU DO BECAUSE IT WAS THE RIGHT THING EVEN THOUGH IT WAS HARD?

I try never to do that anymore.
Dorothy,
older woman, grandmother,
Southern California

I went to a funeral and had to see all these people that were as upset as I was.
Woman,
16, student,
Slidell, Louisiana

I left my husband. It came to me that it was a question of not who was right but what was right. It was hard. I'm still going through it.
Mrs. Dicky White, 24
Richmond, B.C., Canada

I robbed the till . . . and planned to do so regularly for months . . . I was angry with all the people I work for, a family business . . . I put it back becoz tho' they casually threaten my economic survival for minor rule infractions, taking their money will not aid me, even if they do sack me . . . If I kept the money I'd hate them for making me a thief.
Steve, Richmond
Victoria, Australia

Told the tax man how much I'd earned. He took 35%. I swore.
Philip Stewart
Forestry Lecturer
Oxford, England

Court commitment proceedings, first wife, then son. More of same FBI hassle.
William Corr
Seattle, Washington

Selling my guitar (a companion of 16 years) as a seal to the promise to myself not to do music publicly anymore; choosing a small women's press over a big New York house for my next book of poems.
Jody Alieson
35, poet
Seattle, Washington

Last December, I left my wife. What happened was that I took apart my life, which was alright with me, and hers, which was not alright with her. Now I'm reassembling mine, and she doesn't know quite what to do with hers.
Michael Dolan, 27
writer, photographer
Washington, D.C.

I didn't cry when I saw my father in the Post-Op section of the hospital, and knew that I might not ever see him alive again.
Woman, 23,
systems analyst,
Maryland

WHAT HAPPENED WHERE YOU WORK?

Secretary, YMCA, Denver, they had party for orphans to kick off Y events, using orphans, shocked me.
Marjorie A. Smith,
senior citizen,
editor,
Dexter, Michigan

I slit the throat of a baby goat.
M.T. Coleman, 36,
Ganges, British Columbia

When we got in trouble with the cops and they were supposed to come to school, but didn't.
Woman, 18,
high school student,
Louisiana

One day I discovered that nearly everyone on the job (I'm a carpenter) had some form of basic non-rational but heartfelt belief – Jehovah's Witness, charismatic Christian, flying saucers, etc. I've been wondering since what mine might be.
Baumgardner,
Tonasket, Washington

There are various funny anecdotes that I tell occasionally about my work – but I do not think of these occurrances except when I speak of them.
Fred Van Riper, 32
Civil Servant
(Social Security),
Portland, Oregon

A hitchhiker came in and talked to me for two hours. He must've been lonely.
Doreen Blackburn,
18, high school student,
Norway, Iowa

One of the managers told me I write like a retard. He said it in a way that really hurt my feelings.
Lori Becht,
high school student,
Norway, Iowa

Young man died a few days after he left us for a new job – work accident.
Philip Stewart,
Forestry Lecturer,
Oxford, England

Typical southern discrimination that I was powerless to stop. Left me feeling like a – I dunno.
Pam, 18,
high school student,
Louisiana

I worked in an advertising agency for about two years – very businesslike and all. I was in the boss's office, we were trying to come up with a great new campaign for a hard-to-please client. We'd used up our bag of tricks, everyone was

frustrated, things looked dim. Suddenly the boss looks up from his typewriter, gave me a twisted look and said, "I don't *have* to do this ya know." Then he promptly started reciting T.S. Eliot off the top of his head. No more business was done that day.

Tom Lichtenheld,
designer,
Madison, Wisconsin

Duties

There are a number of things you must
Do when the patient has expired.
First, if it is night, you must call the intern
From his rumpled bed
To come and pronounce the patient – this person
That has now become a body.
He may be very tired, and since
This is strictly a formality
(it had long ago been decided not
to resuscitate)
He may be reluctant to come but courtesy
To the relations asks for this visit,
And so he will put his cold stethoscope (he no longer
Needs to warm it with his hands) to the yellow
Parchment which covers the rib cage
And listen for the sound of a heart not beating.
When he has heard the sound of nothing for one minute,
He will flash his light that looks like a pen
At the eyes, to check for pupillary response.
Then he must straighten slowly, and raise his head,
And if he is sensitive, and cares, he will look
To the eyes of the nearest relative and say simply
– I am sorry. We did everything we could. –
At this point you must take over, for
If he has not seen many deaths yet he
Will be a little confused but you
Know all the moves and say quietly
And professionally, – Thank you, Doctor – making it
Easier for him to leave
The room, from which he will stumble
Wearily to the Nurses' Station to call
The patient's private physician to ask if
He must obtain autopsy permission
From the widow.

Depending upon which stage of grieving
The relatives find themselves in (here you must
assess carefully) you may ask them to leave the room
For just a minute so you may arrange
The patient, and you must gently escort
The widow to the waiting room and bring her
Hot coffee in a styrofoam cup, and if it
Is appropriate you may hold her and place
Your arm on the son's shoulder. His hand
Will most likely be over his eyes.

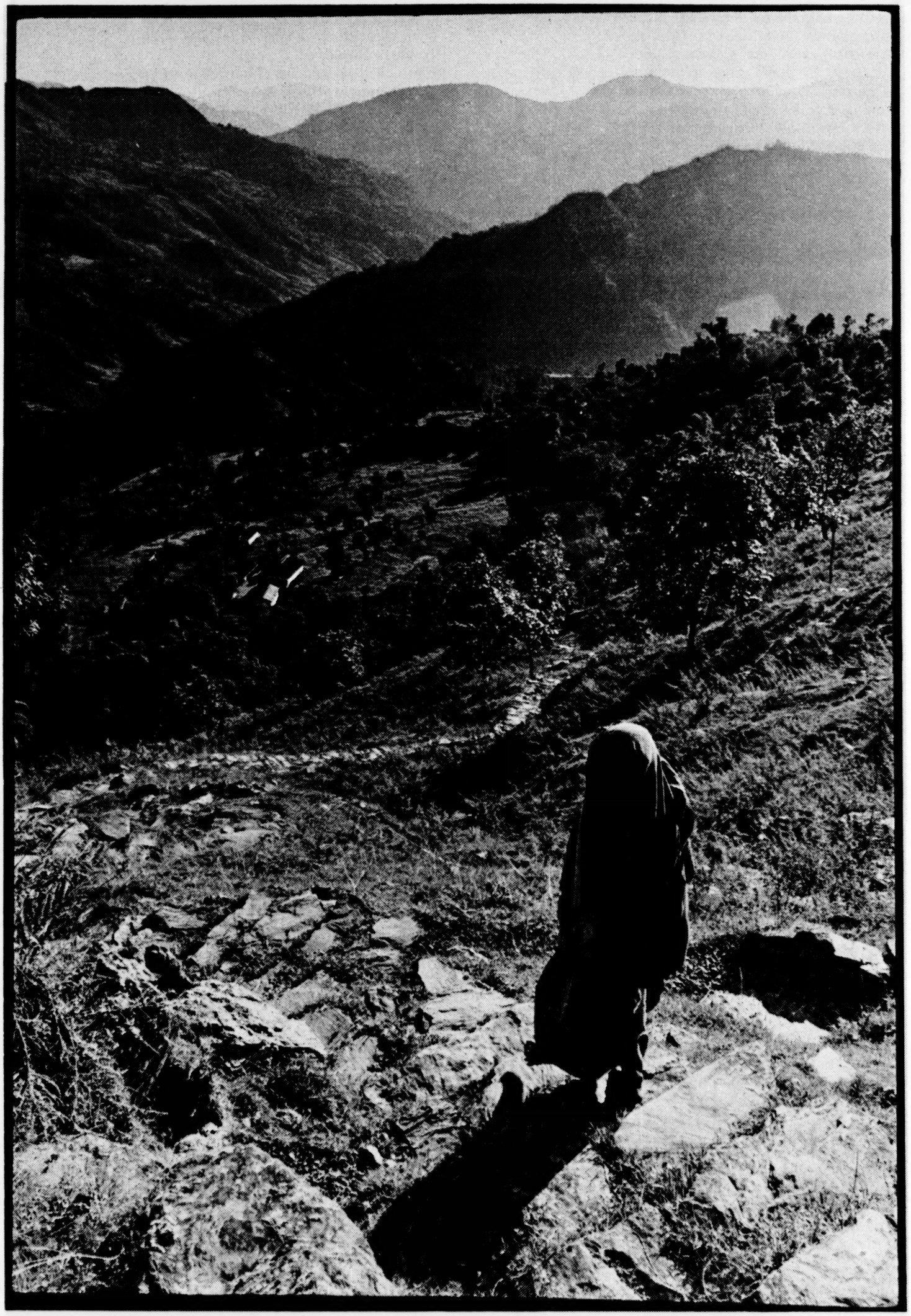
You may then leave the family to the ministrations
Of the ward clerk, and return to the room
Where, for a minute, as you enter, you will imagine
That the patient still lives,
But you know that the dead often gurgle
As the last bitter secretions come up.

You must put the pad of each thumb
Firmly upon each eyelid so that the fixed
And glittering eyes will remain closed.
You will want to do this first
In any case, since although you have
Been through this many times, you prefer
To work alone.
When the eyes remain closed without
Your thumbs, you must remove the catheter
Which may still be draining the patient's urine,
And the maintenance intravenous (strictly
for injection of pain medication)
And you will take out the hearing aid
And the dentures which he had asked
Be left in until the end. The hearing aid may
Whine, and startle you. You will next collect all
The personal possessions of the patient which
Will probably include pajamas, some cheerful
Get-well cards, and a transistor radio and
Put them into a brown paper sack. You then collect
All the disposable equipment, such as needles and
Sputum cups, and change the linen which
Became stained at the moment of death when
Control of functions ceased.
When you have attained order in the room,
You will turn on the bedside light and
Turn off the overhead for a softer,
More intimate atmosphere and
Return to the lounge where you may expect
To find that the Priest (or Rabbi) has arrived
To aid the family in their grief work.
You will softly interrupt, if it is appropriate
And suggest that . . . if they should like to
See him once more? . . . And together you and the Priest
Will escort the widow to the room while
The son walks alone behind with his
Hand over his eyes.

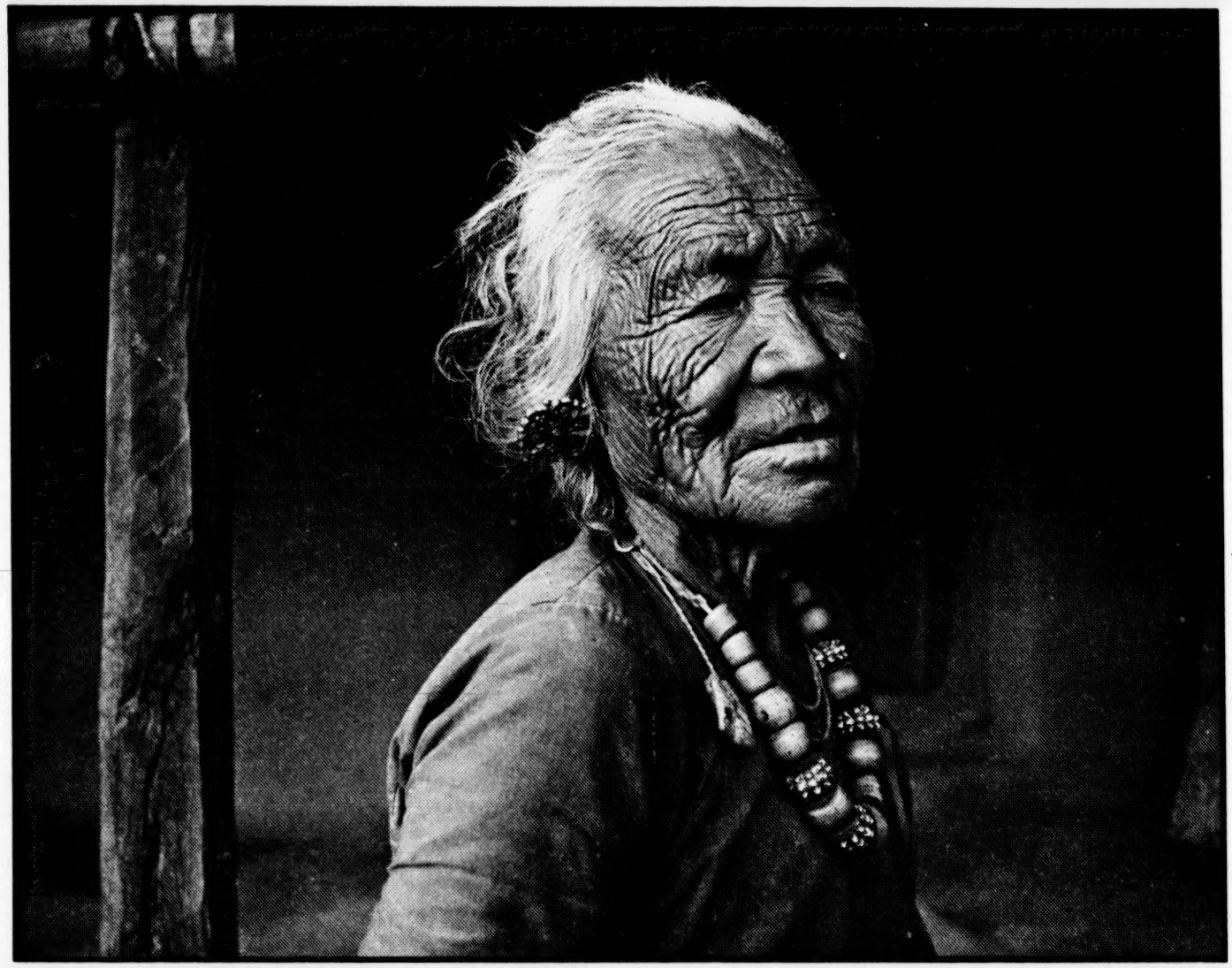
You must expect that the widow may burst
Into tears at the bedside, as well as the son,
For the body often looks surprisingly
Peaceful when the eyes are closed and stimulates
Expressions of the grief that the survivors
Feel for themselves. This
Will not last very long, for now that it
Is over they will want to leave but here,
As was the intern, they will be a little confused and
You must facilitate their departure so that
It does not appear to them that they are
Leaving him behind.

You take the paper bag of his possessions in
One hand and with the other, guide the widow
To the elevator. You must tell her that
It was a privilege to have known her husband
(But you may say this only if you are sincere) and explain
That the funeral home of her choice must
Be in touch with the hospital in the morning.
You must try not to use the word "morgue."
At this point, if you feel warmly toward
The widow, a gentle embrace may make
Her departure easier for you both, and
You may shake hands with the son.
It is best not to walk away until the elevator
Door has closed. Then you must set into
Motion the mechanism which will
Transport the body (you are now able to
refer to it by room number) to the refrigerator
And disinfect the room.
You will then have completed your
Responsibilities to this case.
But under no circumstances may you think
That it has not moved you.

Annelieke Rietsema,
Peace Corps Nurse,
Santa Barbara, Honduras ■



On the path from Danda to Simli.



Nepali Aama

photo story by Broughton Coburn

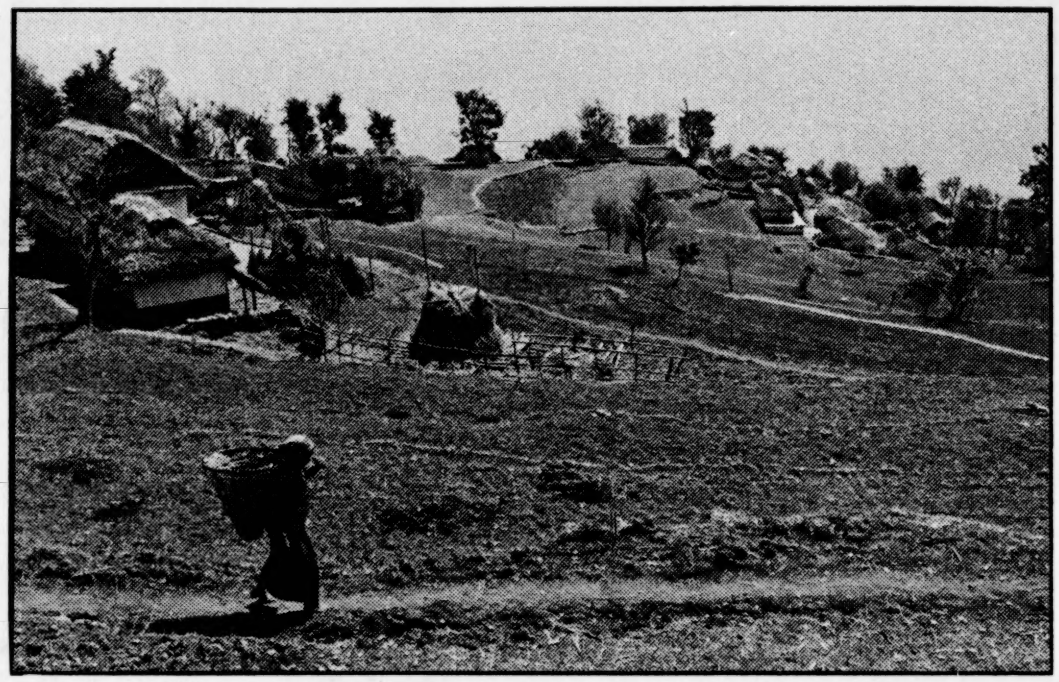
IN THE FALL OF 1973 I BECAME THE tenant of Vishnu Maya Gurung, an elderly widow of the Gurung tribe of central Nepal. My room was the open-air loft above her water buffalo, in the village of Danda, a day's walk south of Pokhara in Nepal's middle hills. I had been assigned by His Majesty's Government to teach high school science in a village a half hour's walk from Danda – a walk that took me through two villages of distinct Mongoloid tribes, across terraced fields skirting sharply-angled ridges, and past scattered thatch-roofed dwellings of Hindu-caste Nepalese. A few miles to the north stand the Annapurna and Dhaulagiri ranges of the Himalayas.

Broughton Coburn was with the Peace Corps in Nepal in the mid'70s. At present he's in Seattle and his Nepali Aama material (what's here is a small sampling) is headed toward bookhood.

–SB

Originally I was her unusual lodger, but later Vishnu Maya began to treat me as a surrogate son. She had never given birth to male offspring, a stigma in Hindu society that marks one as being only partially fertile.

Vishnu Maya is known to most Danda villagers as Aama, the Nepali respectful kinship term for mother. She performs all of the household chores herself with a relaxed, quiet decisiveness and singleness of purpose. At first she took no assistance from me, afraid to tarnish my caste-like "master-sah'b" – school teacher – dignity. But with work continually overflowing into the late night, she soon allowed me to carry her lighter loads and execute some of the repetitive, but surprisingly difficult tasks. Fetching water, churning butter, policing chickens, splitting firewood



Life in our poor mountains is a great deal of work with little to show for our labors. But even when I have only a fistful of air left to breathe I'll still be attached to the people and places of my life. The soul always worries and tries to make order from that which doesn't take to being ordered.

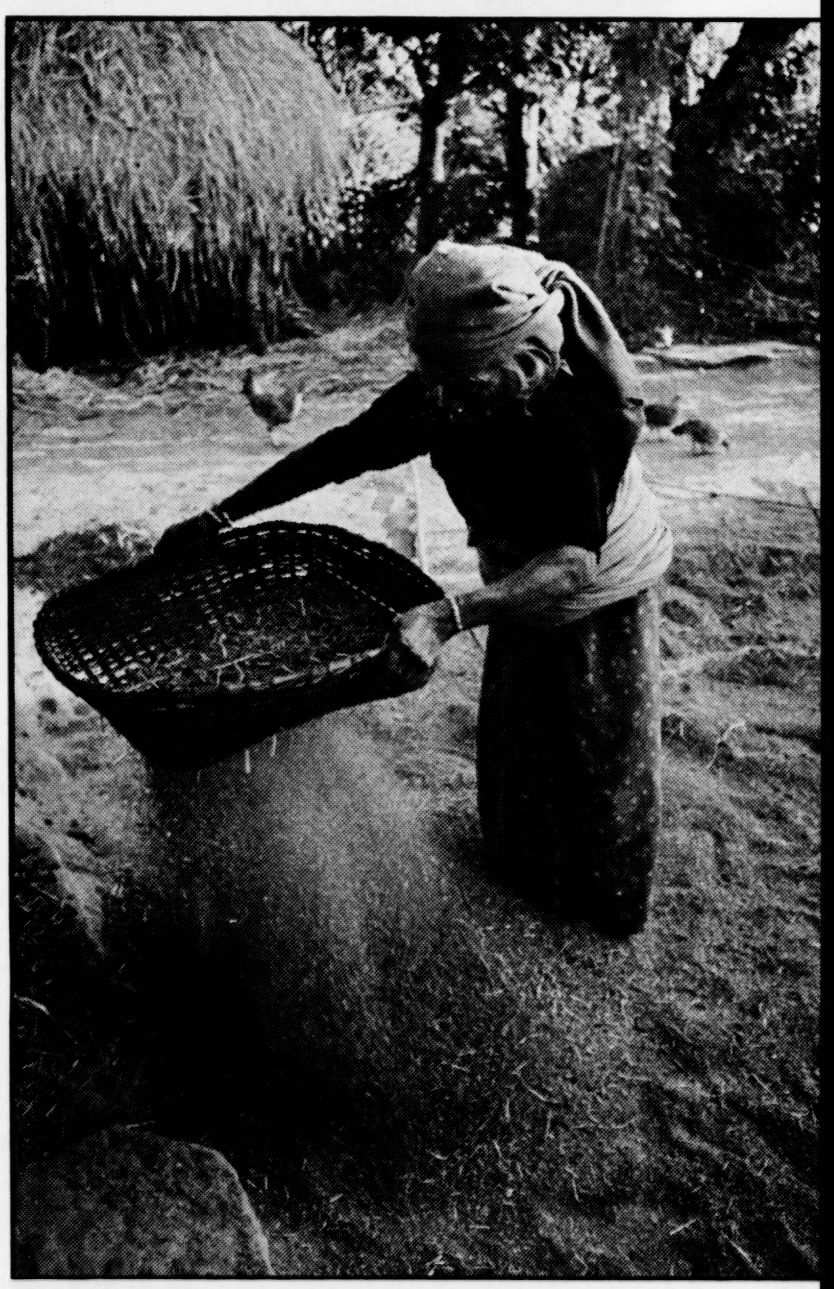
No matter where I go, I can't leave home for long. My parents and their parents were born, raised and lived their lives here. Their sweat watered the crops. Sometimes I feel like selling the →

and feeding the water buffalo were commonly my lot, since my attempts to thatch roofs, weave baskets and plow fields were embarrassing failures. My greatest value to Aama and the Danda villagers seemed to come from the comic diversion I yielded as the butt of good-natured jokes and mimicry. This teasing, however, was preferable to the hopeless unmanageability of the sixty restless and screaming students that were assigned to me.

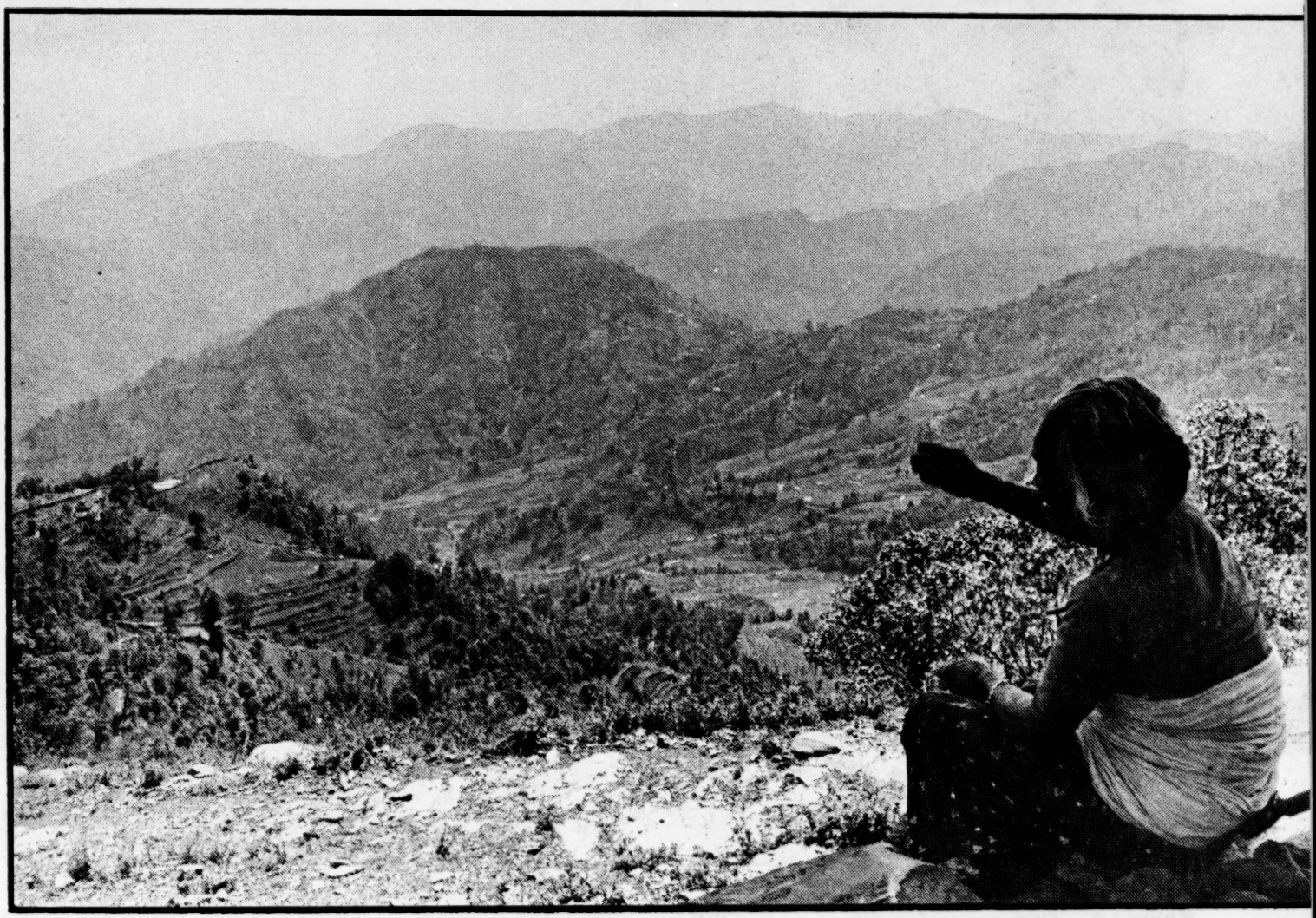
Each day my respect grew for Aama, her tribespeople and the middle hills of Nepal. Aama and the Gurung were poor and uneducated, but they seemed to possess an uncanny strength grounded in tradition, family, community and self-sufficiency.

I lived with Aama for over a year before taking her photograph. She did not strictly believe, as some villagers do, that photographs will shorten one's lifespan, but they can be an invasion of privacy. She gave me free license to photograph her, concerned only that I was wasting film on a wrinkled old back-hills lady of no importance.

The following is a sketch of my experiences living, working and traveling with Aama. The quotes are hers, at times interpreted freely to convey the meaning and feeling of her observations, at times more literally to capture the metaphorical lyricism of her perception. Aama's approach to life is unique and personal, yet at the same time representative of other Gurung and Nepali hill folk of her generation. Most of Aama's interpersonal relations concern everyday matters, but her occasional reflections, whether objective, humorous or philosophical, show a profound realization of her specific place in the universe — a universe in which she is only in a physical sense not well-travelled.



Sifting millet after threshing.



"You'd never believe that that hillside was all jungle when I was a girl; now it's all buffalos and people."

house, land, buffalo, everything and travelling around, going where my footsteps lead, laying my head wherever night falls. Since I have no son, who am I to give my inheritance to? My son-in-law's a gambler and a drinker; he was elected headman of Danda, but everyone can see through that. If he'd gotten into the army he wouldn't have had a damn thing to do with village politics. I can't leave the homestead where I've spent my life. Maybe because I know I could never come back once I left.

As time passes, our people have settled more thickly and have needed more food. Until now we have managed, by clearing more forest and intercropping where we had grown only one crop before. We never used to plant millet between the corn stalks – there was plenty of land for each to be grown separately. Now, all the arable forest land has been burned over and plowed up, and everyone is intercropping throughout the year. Some have started to raise corn in the rice paddies before the summer monsoon rains. If there is enough water to irrigate, the paddies can produce two crops of rice in one year. Where can we go, what can we do from here? It seems as if we are working harder, but growing less food. When I first moved up to this village from my natal home, there were only eight houses in Danda. Now there are eighteen. Everywhere you turn you run into someone. There are more kids now than there are adults; where are they going to live, what are they going to eat? There are just too many people.

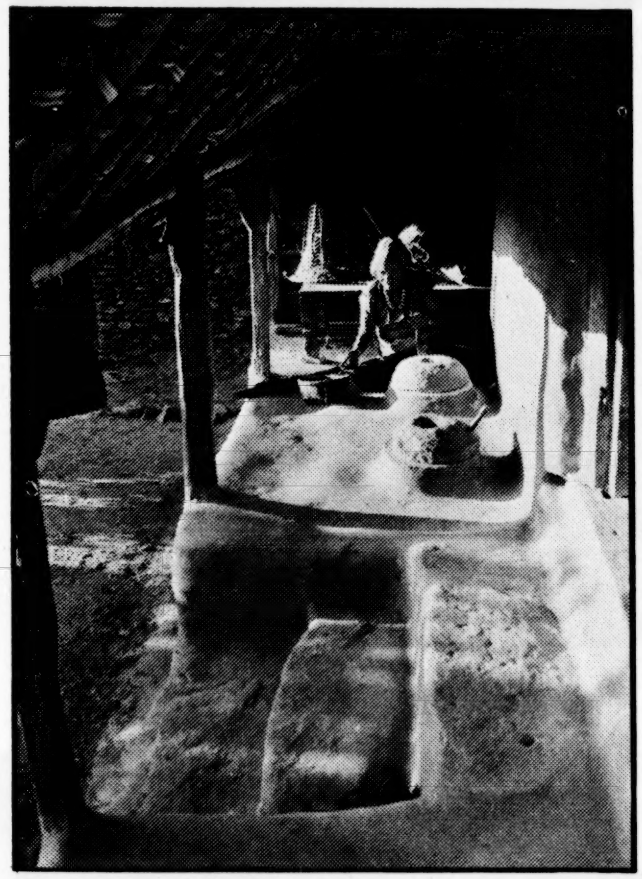
"This is the last big beam log I'll ever see in our forest. There aren't any trees of this size left now."

There's a spring an hour from here where if women drink the water they'll have multiple births. Twins for sure, but triplets and one case of quadruplets have happened. No one drinks the water there, even though it is the closest source for a nearby village. Not even the men drink it. What would you do if you gave birth to four children all in the same day?

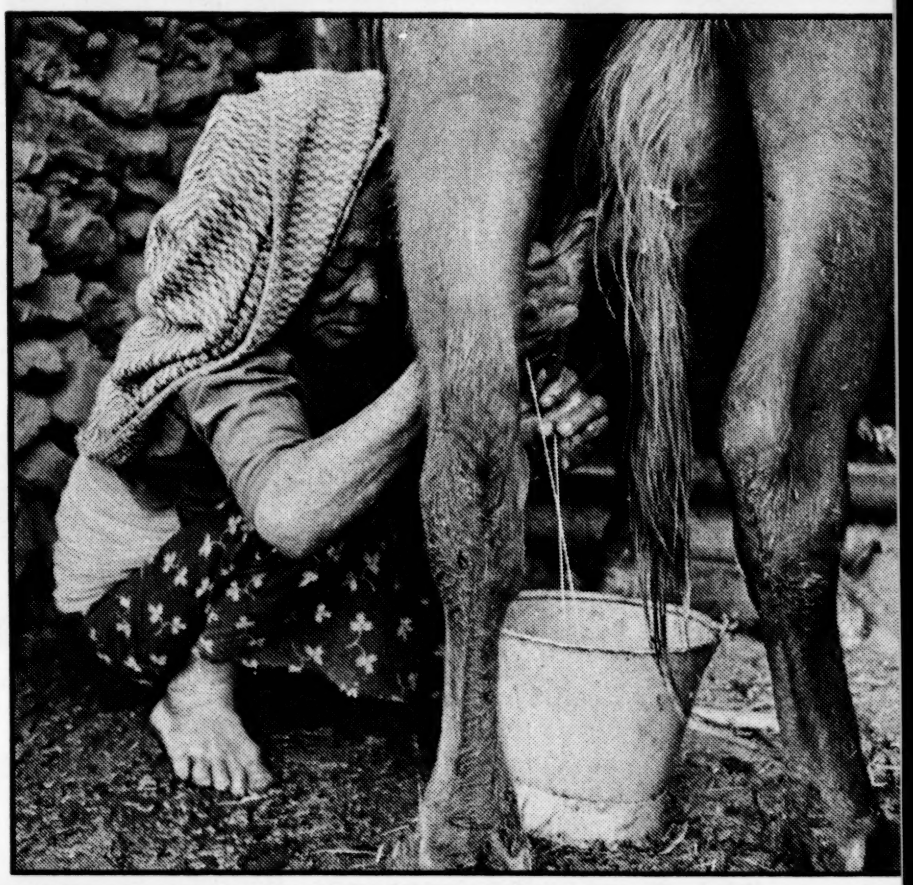
Hare Ram, I come home at night and who can I say I'm tired to, who can I say I'm hungry to?

This land here below the ridge used to be cultivated; my uncles planted millet and corn there. But they felt too much of our pastureland was being dug up to grow crops. Without good pasture we can't raise cattle, and without cattle we wouldn't have milk or the dung to fertilize our fields. So my uncles got together and decided to return the land to pasture. They performed a small ceremony to protect it from further cultivation: they broadcast salt on the terraces. When this is done no descendant for two generations may farm it, unless there is a serious famine. I don't know how we'll survive the two generations without cultivating that land. There used to be all the land we needed right near the village, enough so that everyone could grow rice, beans and vegetables. Now everyone just grows millet, and there's not even enough of that to go around. These terraces of corn and millet that you see here – nobody would have dreamed that they could be anything besides second-class grazing scrub. On the trail from here to Simli, we used to be afraid to go alone through the jungle that used to be where the fields are now.

"When you are churning butter, you have to keep the temperature just right, or the butter won't separate. When the pulling gets harder, it is almost ready, and you must look to see if the butter is forming into a scum on top."



Grinding corn into flour.



Barely a pint.

Farmers live a painful life. Water falls from the skies by the hand of god, and we farmers all argue over which way to divert it. There isn't enough for everyone's fields. In the south, toward India, rain water is usually enough to grow rice. They don't need to irrigate as much as we do. But their rice doesn't taste as good as ours; it must be the cold water we have in the hills that makes it so tasty.

If it rains too much, the crops don't give a good yield. If it rains during rice harvest, the rice won't dry and it begins sprouting in the head.

Farming is an honest profession. You can't bribe the weather to produce crops. Farming takes hard work and luck that the crop won't be destroyed by hail or pests. Hail and pests are small things, but they have the power to undo all our effort.

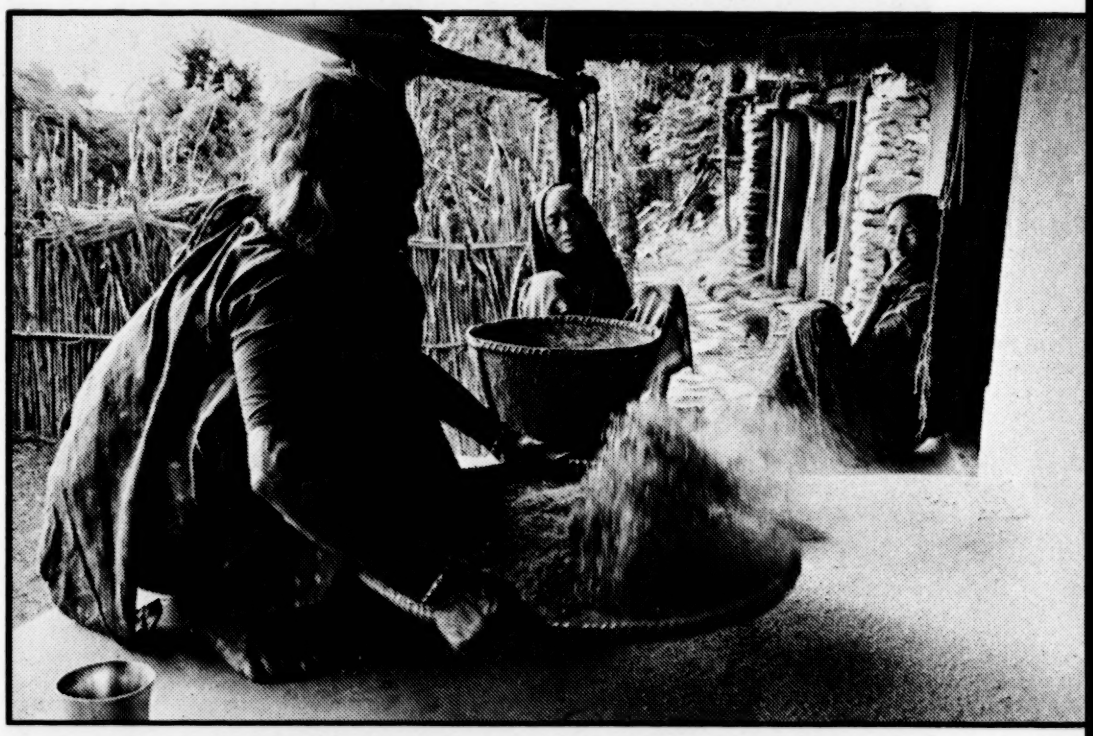
One of these clever blacksmiths said if I let him take all of the good structural lumber from one of my trees, he would fell it, split the leftover firewood and carry it back to my house. Well, he felled it and must have split what was left over because all that's left now where the tree was is the stump. At least half of that tree was good only for firewood, but he sure didn't bring many loads of it here. I can't watch the path all day to see what he does with it. As soon as he gets home he can exchange that stuff. It's easier to do the work yourself rather than give the job to someone else. They ask for more after they've taken their due, and complete only half the job anyway.

Resuscitating an ailing chicken by restoring its lost breath through the other end.

I can sometimes distinguish the different untouchable castes by their faces; the blacksmiths and cobblers are the darkest, and they talk in a certain way. But it's easiest to tell them by their smell – not that they smell bad, but the potters smell like clay and the goldsmiths smell like the flux they work the gold with. In India, the hair trimmers and street sweepers all have their own smell, too.

As part of our dharma, we used to leave a flame burning in the kitchen firepit all day long, on the next to the last day of each month. With firewood as scarce as it is these days, most of us have given up that practice. The forests are disappearing too quickly. The water buffalo is getting old now, and I've got to think of buying a new one, but the trade-in value on an old buffalo isn't too good. She is almost dry, too; sometimes she gives milk and sometimes she doesn't. I was sure she was to give birth when she got so fat last year, but no issue. When the buffalo dries up, do you think I can get milk from the chickens? The last buffalo I had didn't conceive for two years in a row. She had been with me so long and had given so much milk, she was just like a mother. I couldn't watch when she was sacrificed, and I didn't allow any of her meat into my house.

Maaita writes the alphabet.



"If we could eat all of the pebbles that are mixed in with this rice, I'd be overweight and still have enough left over to sell."

I tried some of that marijuana the Brahmins smoke. It made my head go patatatatatat and I felt like I was on a festival swing. But there's no intoxicant worse than gambling. My brother has thrown away over 25 thousand rupees gambling. He's not the same man he was.

Alcoholics are not much different from business people. The more they drink, the more they become hooked on it, so they drink even more. Business people from the bazaar are just like that – the more money they make, the more they want to make. It becomes an addiction with them.

When we were young, we never learned to laugh amongst boys or wear the clothes girls wear now. They like to wear those darkened glasses so that you can't see their eyes. I looked through some once; all of a sudden it looked like it was going to rain.

With many of the city jobs now, you earn money at someone else's loss, sometimes by unfair means or trickery. Children don't learn this in school, but they study there for ten years, and then lose their appetite for farm work. They move to the city, then learn how to make money. But you can't eat money – who knows if it will be worth anything tomorrow?

In many places, water is drying up. That is why the wealthier people of our mountain villages hang bronze bells from stone altars above the spring. Once a year, or more often if we can, we dress the shrubs around the springs with sacred thread. This is done to satisfy the nagas, or serpent spirits, which control the quality of water, and the quantity of it, too. During our rainless winter months the springs dry up to the point where we must ladle water into the urns. Each winter there seems to be less water. As trees disappear from the forests, water disappears from our springs. We need firewood to cook tea, and we need water to cook tea, but when the forests are gone, we won't have either.

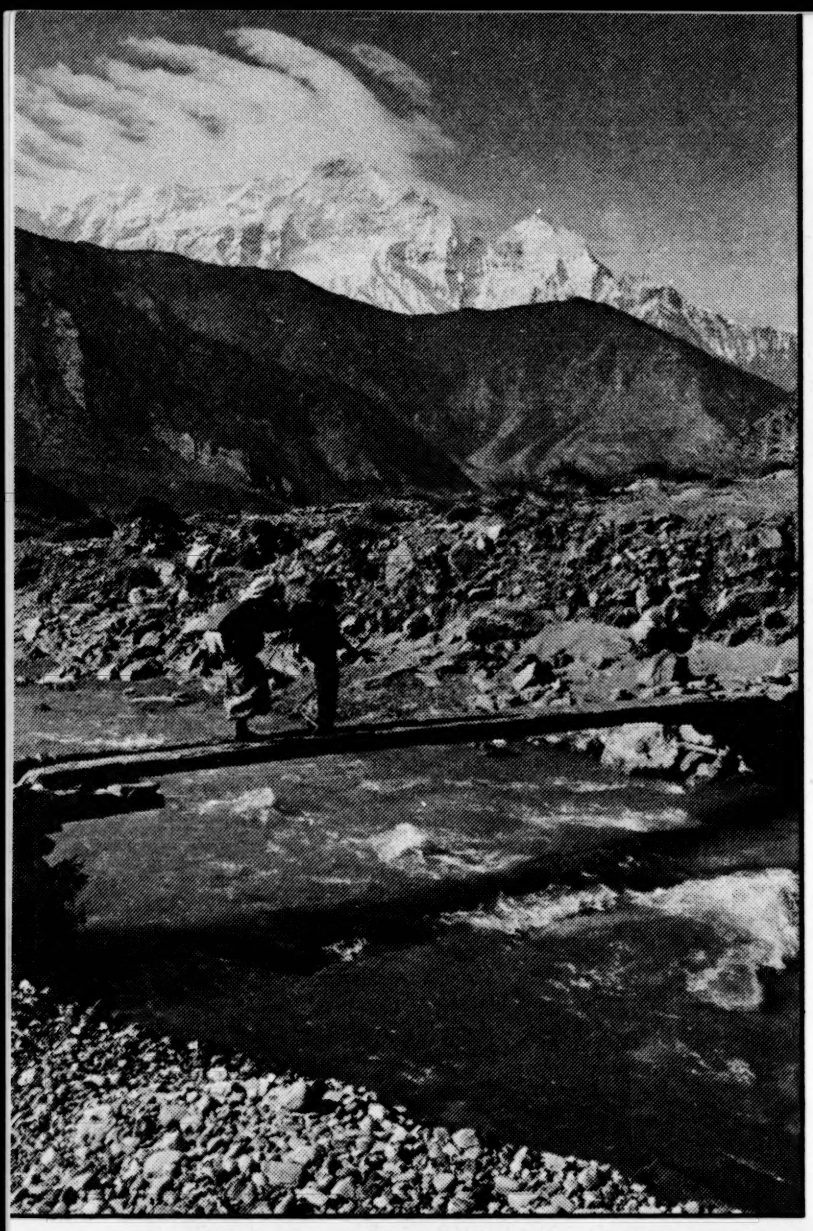
Twenty minutes' walk.

Some ladies in Danda wear shoes – not around the house and yard, but when they go to the bazaar or off to the forest. But they all have sons in the army who are colonels or lieutenants. We who don't have a pension or army pay coming in would be pretentious if we wore shoes. Villagers would look at me as if to say, "Oh, so you think you have a son in the army, ha, ha, ha." On the frosty mornings it's hard on the feet because that's when they start to crack and split. The dry weather doesn't help, either. Those cement floors in cities are especially rough on those who don't wear shoes.

Before there were watches, we used to tell time through an internal timepiece. We always knew exactly when to meet for work in the fields or forest. Now that there are watches to tell us the time, everyone's internal timepieces have fallen into disrepair.

In the old days the army recruiters, both British and Indian, used to come up into our hills and bribe the village boys to enlist. They gave out money and small favors, and even with that they had a hard time meeting their quota. Now times have switched. Four or five thousand rupees is an average bribe these days to get oneself into the British Army, and the competition is getting fiercer for the Indian Army too. Gold, large tins of ghee, clothing, money and now even titles to land are passed under the counter to these conniving recruiters. Now the only villagers who can afford to get into the army are those with fathers who were soldiers themselves. They have enough capital from their savings and pensions to pay the way in for the next generation. The only way to get a second glance from a recruiter these days is to fill his mouth and pockets.

When army soldiers brought the first soccer ball up to our village, most of us didn't know what it was. Some pensioners were playing with it on the ridge above here once, and it bounced over an hour's walk down the hill, going through the woods and across terraces. It landed in a farmer's rice paddy, and the farmer hiked over to Raaipur to ask a Brahmin pundit which god had brought this object to his field, and what its meaning was for his family and crops.



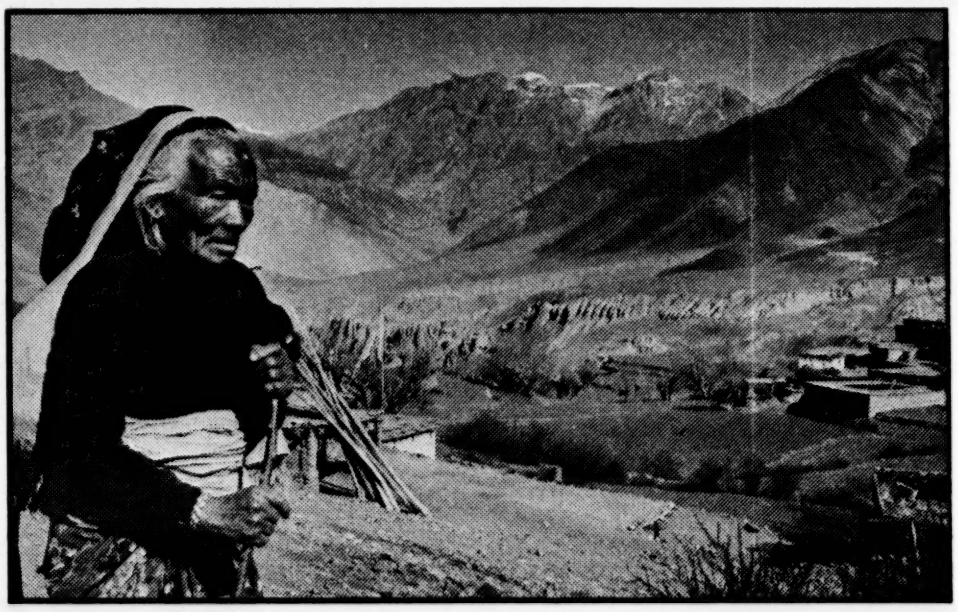
Along the trail to Muktinath.

In the spring of 1977 Aama and her 65-year-old sister Chyaure set off on a religious pilgrimage. In two devotion- and fun-filled days, they toured the Hindu and Buddhist temples of Kathmandu, Nepal's capital. Fervently, they rang temple bells, spun prayer wheels and circumambulated shrines, as if in competition with each other to see who could earn the most religious merit. They fed pigeons and scolded monkeys, and temple pundits spoke to them at length on philosophy and religion, pleased to have the attention of village women who were, if briefly, unencumbered with daily affairs.

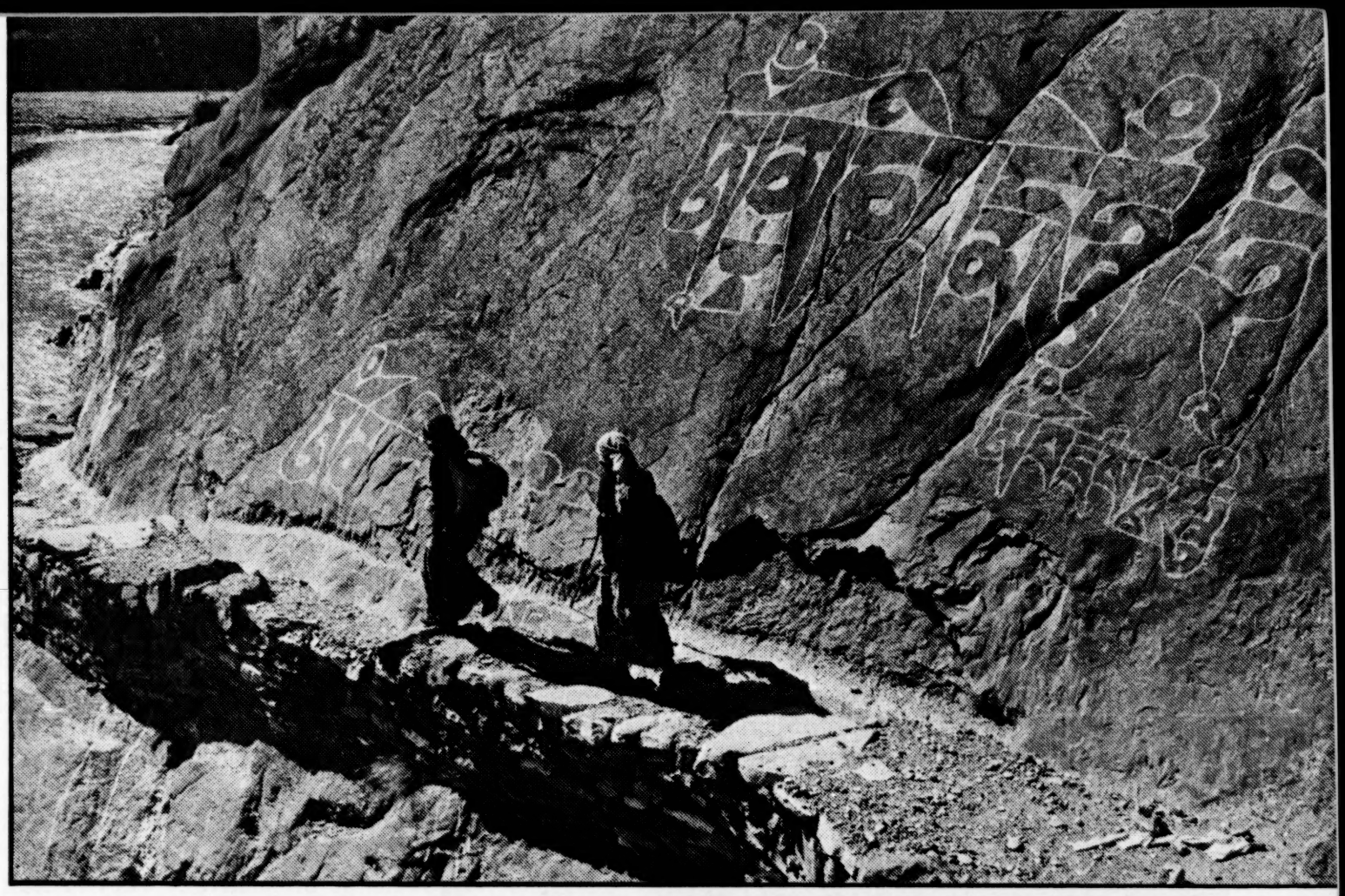
Weary of the newness and hustle of city life, and satisfied that they had paid homage to all of the concerned deities, they departed for the temple of Muktinath. Meaning holy place of liberation, Muktinath is located at the head of the Kali Gandaki watershed 12,000 feet high on the dry northern side of the central Himalayas. Many Hindus and Buddhists as well feel that only following a *darshan* or holy appearance before the temple gods of Muktinath can they achieve true spiritual liberation. Aama had brought the name of Muktinath and other holy places and gods to her lips every morning and evening since she could remember. She and Chyaure had long been anxious to make the journey, and were glad to be doing it while they could still walk easily.

The two shoeless, toothless sisters rambled along from village to village, sunrise to sunset, like teen-age girls out from under their parents, exercising full advantage of their time away from home. Unashamed of their naivete, they collected what they thought were fossils and precious stones along the riverbed, and bathed in a hotspring reserved for men only. Aama filled a pint rum bottle, after unabashedly draining its contents the night before, with hot source water from the

Brahmins have always flaunted their spiritual superiority. They think their divinations are more accurate and worth more money than they really are. They expect large tips from the rest of us second-class Hindus for their "single-minded religious devotion." But they've abandoned many of their austerities such as abstinence from drinking alcohol and eating chicken. Most of them don't even bathe every morning as they used to. And they think they can retain spiritual aloofness even after they've made themselves just like us. By today's customs, most people feel that if they are rich and powerful, then they have religious merit, too.



After a mass pilgrimmage to a holy place, it always rains solid for a few days. It must be Bhagwan washing away the filth left along the trail by the pilgrims.



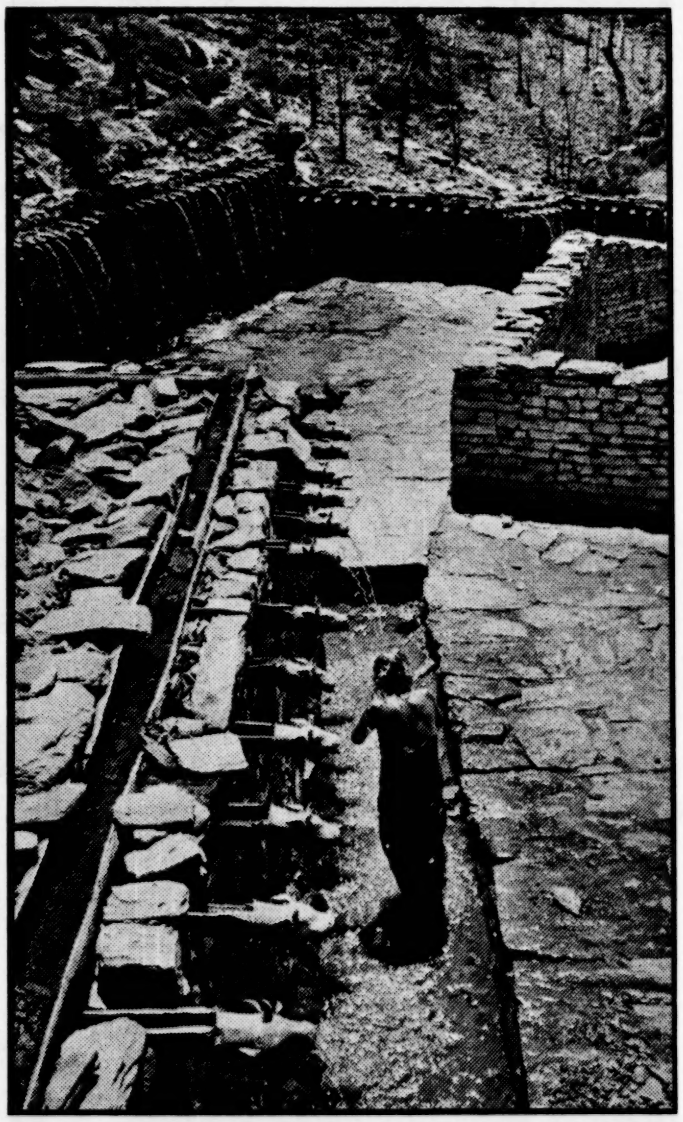
"Om mane Padme hum."

spring – to take home and broadcast in the garden in hopes that her own hot water might spring forth. Her sister remarked that it was a crazy idea since the sulfurous water would probably cool before they could reach the village.

They chatted like new neighbors with the farmers, porters and other pilgrims along the trail, curious about their customs, farming practices, or simply their reasons for being where they were. All were in agreement about the hardships of life in the hills but most had a twinkle in their eye betraying their attachment to their mountain homeland. As if travelling abroad, they often stopped to jokingly compare their lifestyle with that of the mountain Thakalis and Tibetan tribes, savor new foods or marvel at a suspension bridge.

Approaching each narrow or swaying foot bridge, they would slow down and then stop and rest to see if one or the other might offer to lead across. When Aama led, she disliked the way that Chyaure, unable to see where to step, pulled on the carrying bag which hung from Aama's forehead.

When Chyaure led, she usually panicked mid-bridge and would want to turn around and go back. By then, Aama would be on the bridge and more afraid to turn around than to keep going. Once, they even passed each other going in opposite directions on a distinctly one-lane bridge. They agreed that the longer they spent on the bridge the greater was the danger for them both –



Bathing under the 108 water spouts at Muktinath.

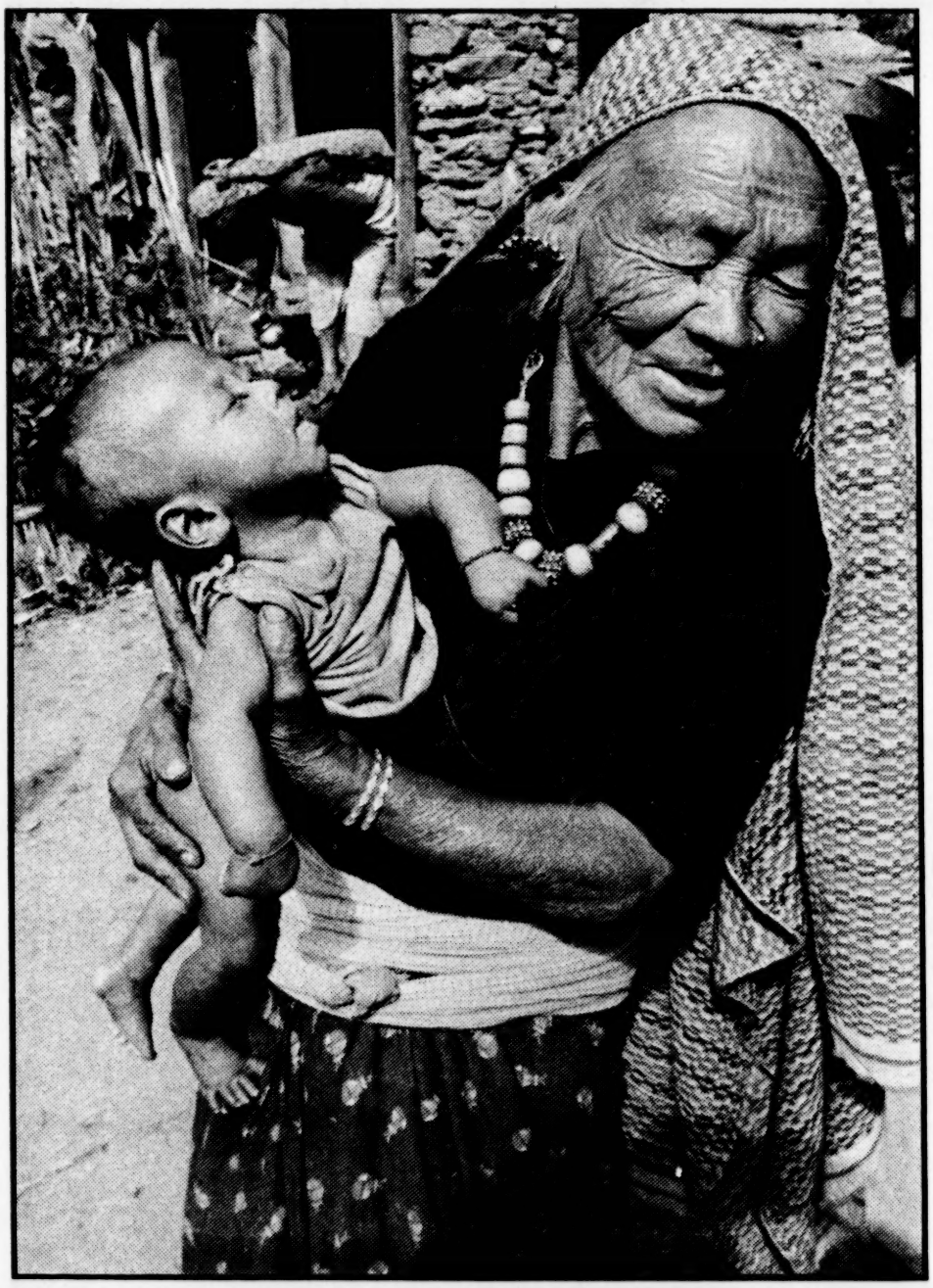
so they would try to run across, which only further jarred and swung the bridge. Hoping to get at least partway across before Chyaure could latch on from behind, Aama continually tried to distract her sister, but was seldom successful. At one point, however, she convinced her that they were being pursued by evil spirits, and Chyaure stepped off the trail to look for a thorny shrub – thorny plants placed at the entrance of a bridge will deter ghosts and spirits that attempt to follow. Aama reached the other side before Chyaure found a single spiny shrub.

Upon reaching Muktinath the two sisters ran under each of the 108 ice-cold water taps three times and made offerings of grain, incense and money to the deities of the main temple. Proceeding to an adjacent shrine, the caretaker led them into its dimly-lit, cavernous interior and vividly described the frescos coating its walls. With awe-struck reverence, Aama and Chyaure pointed to the religious figures they recognized. Impressed that they had come closer to seeing their gods, they huddled at the far end of the temple beneath an offering-encrusted idol. The caretaker then withdrew a drape, revealing the multi-colored eternal flame dancing on the water of a small stream flowing beneath the temple. This unique phenomenon is considered by Buddhists to be one of Buddha's many manifestations, and they have titled Muktinath the Water-Fire-Earth Shrine.

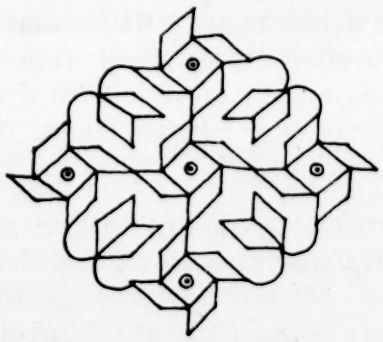
Leaving the temple grounds, Aama and Chyaure piled rocks into small cairns as a final act of piety and to remind the deities that they have come to Muktinath on pilgrimmage. After death, Aama feels, those cairns may expedite her travel to the Muktinath of the heavens.

The following week Aama and Chyaure quickly retraced their steps to Danda, excited to return to the farmsteads they had reluctantly left in the charge of relatives. They arrived in Danda nursing aching bones and split callouses, and for weeks regaled their relatives and villagers with Himalayan-sized tales of adventure and danger in the high hills. The successful passage to Muktinath was indeed worthy of merit in their future lives.

The Gurung's compulsive resourcefulness is almost an embarrassment to the casual observer. Axes, ploughs and digging tools are used until they are worn beyond recognition. The village blacksmiths



New grandchild.



Women are different from men in the same way that goldsmiths are different from blacksmiths. Goldsmiths are like women – they go tyap-tyap-tyap all day long with their tools, while the blacksmiths, like men, mostly lounge around the forge and now and then go DYAANGK-DYAANGK-DYAANGK on the hot iron.

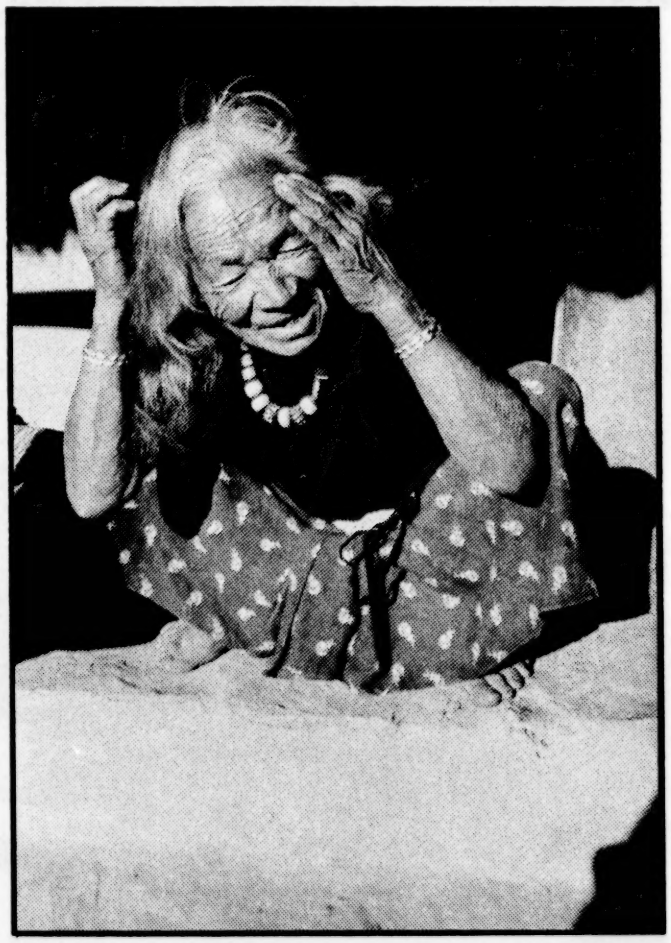
then reincarnate the stubs into another generation of tools and utensils; Aama can recall the lineage of successive incarnations of each of her pots, ladles and hoes. Paper is folded and saved for wrapping spices, and corncobs reappear as everything from bottle stoppers to livestock feed. The chaff winnowed from millet can be fed to livestock or used to stuff pillows.

Aama finds it hard to rest when there is work to be done, which is most of the time. She sleeps from four to six hours a night, working long after dark or rising well before sunrise, depending on whether the moon is waxing or waning. She believes that too much sleep will cause one to be drowsy during the waking hours, and that sleep during the day is an extravagant waste of produc-give time. Aama will acknowledge sickness by carrying smaller loads, and she gauges the degree of her illness by the size of load she can carry. Even when sick she has to eat, she says, so chores come before convalescence. If very sick, Aama may ask those who come for a drink of alcohol to split firewood in lieu of money payment. Subtle discrimination among the villagers against old people also contributes to Aama's ardent dedication to work. Her son-in-law loans her his oxen only at the end of the plowing season, and some villagers make her feel obliged to treat them to a meal or a glass of spirits as if she were a wealthy widow on pension. She hopes that death will come quickly when she is no longer able to support herself. Even in her good health she is noticeably self-deprecating, ashamed of her dependency on Maaita and others to perform the heavier tasks that she used to manage alone.

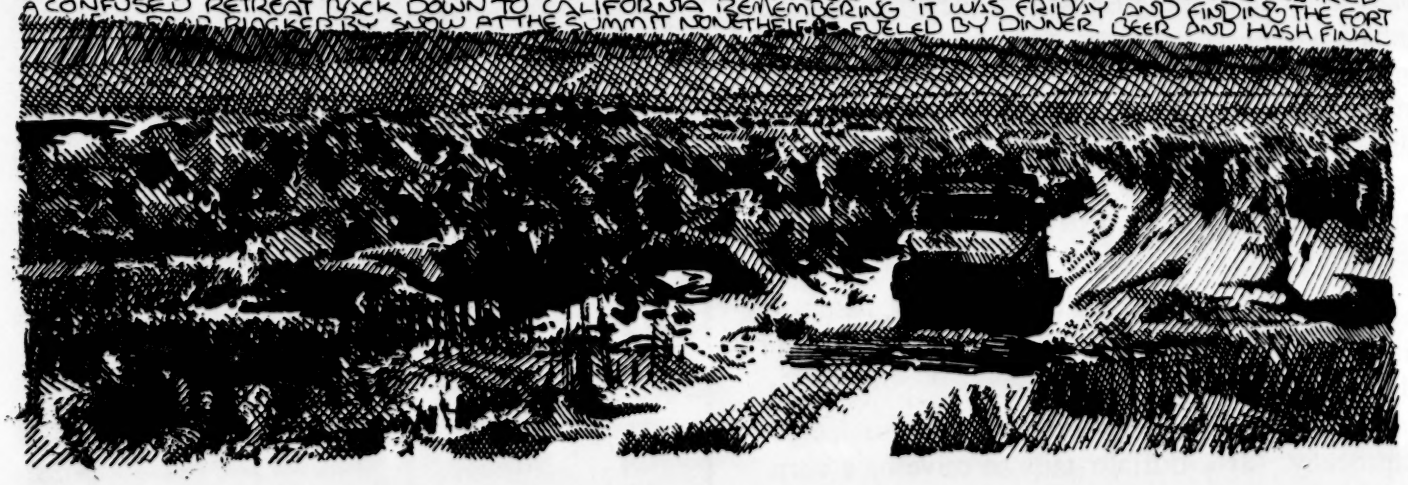
Aama is inextricably bound to the life of Danda and the surrounding Gurung villages by relation and mutually shared beliefs. Children and relatives are at the heart of her identity, and her health and wealth are tied to that of the extended family. Kinship terms, rather than names, are used for address, constantly reinforcing the familial bond with even distant relatives. A villager may have a dozen titles depending on who is speaking to him. Aama's youngest nephew addresses her by the kinship term *phaane*, meaning "father's eldest sister," while the same nephew's wife addresses Aama as *phojo*. These kinship names also connote a specific interrelationship, whether patronizing, respectful, friendly, distrustful or available for marriage.

The extended family is a complicated and finely-tuned organism, though it can be precariously balanced. Relatives are counted on in times of hardship to share a generosity which is expected reciprocally. If a buffalo fails to calve or a corn crop is destroyed by hail, close relatives will set aside some of their yield for the affected one, while their own harvest may not have produced even a year's supply for themselves. Wealth is never a private affair. Those who have the means are generally obliged to give loans to those who don't. The debtor in turn will seldom offer to repay the loan until it is apparent to all that he has generated the means to do so, and the creditor will not ask until that time, unless he falls into financial difficulty.

Outside the extended family, however, hositilities often build and simmer, usually over unfaithfulness, hoarding, or procrastination in the settlement of debts. Gossip replaces legal restraint in the enforcement of cultural taboos, and in the absence of personal privacy the sweeping influence of gossip is very effective in controlling village behavior. An extramarital affair will inevitably lead to expulsion of the couple from the village unless a stiff fine is paid to the jilted spouse. Every villager's income, debts, habits and desires are known to all. The young, in an attempt to reserve a degree of privacy at least within their peer group, have coined numerous neologisms and in some villages an entire jargon, impenetrable by the village elders. When private confidences need sharing, Aama too will sometimes converse with those her own age using terms invented in their youth. ■

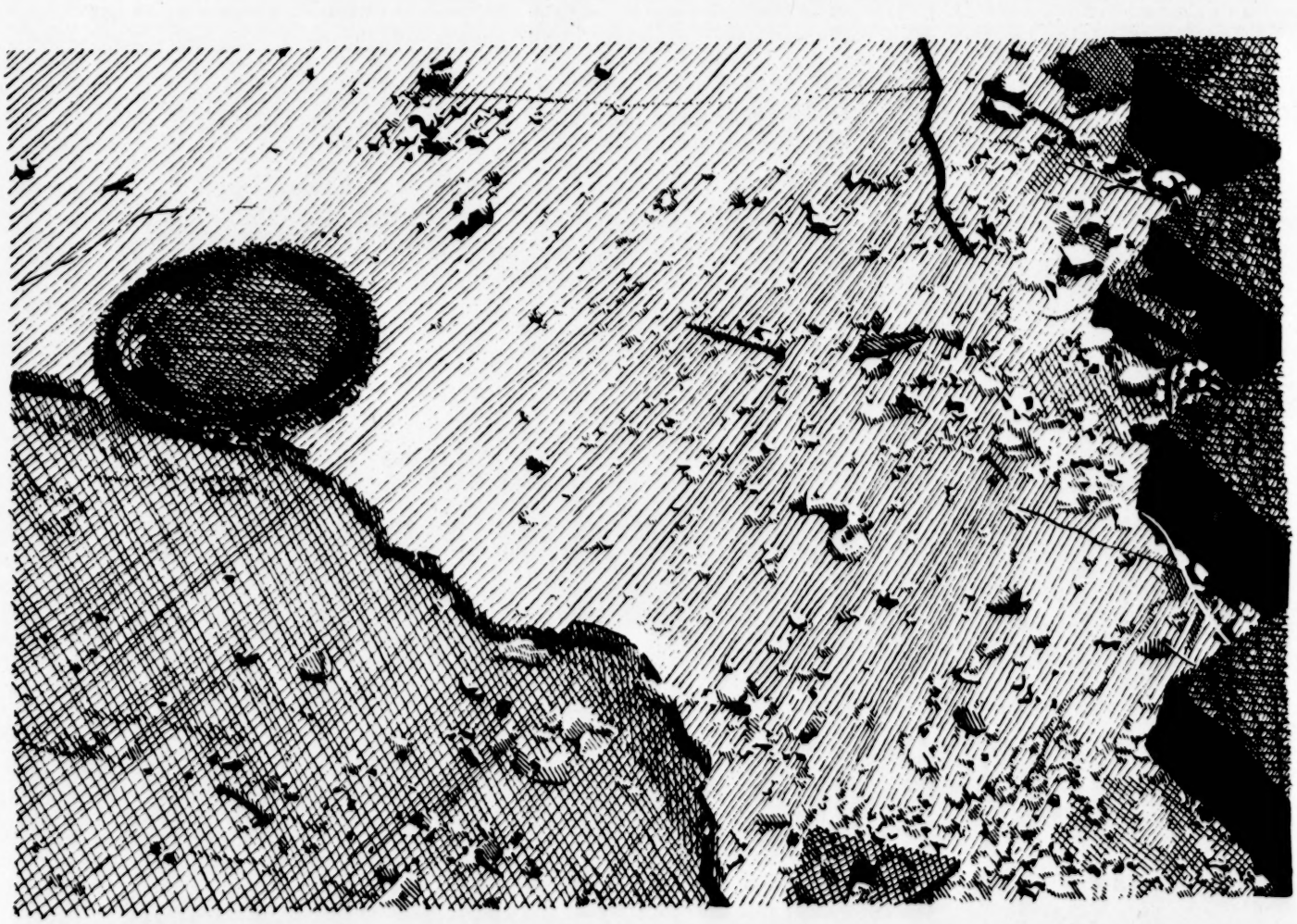


WE TAKE UP THE THREAD AGAIN AT DANTE'S VIEW, DEATH VALLEY, CALIFORNIA, HAVING SUCCESSFULLY NEGOTIATED THE COAST MOSTLY FROM FIFE ON DOWN, EXTENDED REGISTRATION HASSLES AND PERHAPS OVERELABORATELY REBUILDING THE TWO TOOL BOXES, THEN IN APRIL CHIPPING OUT FIRST AND REVERSE ATTEMPTING TO EXIT THE SALINE VALLEY VIA DEVIL'S RACETRACK VALLEY EVENTUALLY LIMPING OUT TO TOUR DEATH VALLEY AND ON TO TONOPAH TO TONOPAH TO CHARLES' APPARENT PEUGEOT DISASTER AND MY APPARENT GOOD FORTUNE IN THE TONOPAH FOUR SPEED TRANNY EVENTUAL DEBACLE AS THE PEUGEOT TOOK A $3.00 POINTS ADJUSTMENT AND I MISSED GETTING THE FOUR SPEED IN BY REFUSING TO WAIT THREE DAYS IN THE MIZPAH FOR A $60.00 BELLHOUSING FROM SF, BUT AFTER A FEW MEALS AT THE LOCAL CHINESE SALOON PAID FOR THE FOUR SPEED AND DRIVELINE STUFF (WITHOUT EXCHANGE ON THE TRANS AND STUFF I PAID TO HAVE PULLED AND PUT IN) AND WE WERE OFF FOR THE WINDY REMAINDER OF THE TRIP FOR AT RAWHIDE IT SNOWED AND DONNER WAS PASSED IN A DESPARATE, DISPARATE DASH INTO THE TEETH OF THE NEXT UNSEASONABLY LATE STORM. CHARLES' MECHANIC FUDGE FLUNKED IN THE TONOPAH TRANNY FOR $90.00 AFTER I FOUND THE BELL HOUSING DOWN AT DECKER THE WRECKER (AND ALSO A DOOR, UGLY WHITE INSPIRING FILLING AND BEGINNING GREY FRWEERING) AND JUST BEFORE JUNE I MANAGED TO PRY THE ANNOYING VIBE OUT OF IT OUT OF IT JUST IN TIME FOR A TRIP OUT WITH BROKER DAVE - L. WINNEMUCCA THE FIRST NIGHT SLIPPING/SLIDING OFF THE BLACK ROCK (UNSEASONABLY LATE SPRING RAINS) AND CHAIN ADAPTATIONS (WORTHLESS FRONT SHOCKS TOO) IN WINNEMUCCA / FREEZING HIGH UP ON HINKEY SUMMIT AND THE NEXT DAY LOST AND SPACED IN THE OWYHEE EVENTUALLY TO ROME, JORDAN VALLEY AND DAVE DROPPED IN BOISE FOR THE FLIGHT TO SF, ME TO VALE AND SOME SCRUBBY PINES UP AROUND THE MALHEUR RIVER... DAY OF INCREDIBLE RAINS STORMS AND WEATHER GENERALLY FROM HARNEY LAKE ON DOWN THE CATLOW RIM AND OVER TO FIELDS, DENIO, HOT BOG HOT SPRINGS BATH IN AFTERNOON RAIN STORM CLEARING AND REFORMING HIGH IN THE TROUT CREEK MOUNTAINS FRIGHTENING DARKNESS DOWNOURS IN ALVORD DESERT AND NEARLY BLEW IT IN THE MUD OF OVERSHOE PASS AT DUSK, BUT SLITHERED OUT FOR A NIGHT RIGHT NEXT TO MCDERMITT... FAILING BUCKSKIN GRADE WELL THE DAMPNESS MORNING- FOLLOWING FOLLOW THE CURIOUS CONGRUENCE OF PETER BERG, IGNORE ALIEN ORDERS, (BOB BASSARA) MCDERMITT NEVADA AND A BROKEN DOWN SAAB, I FOUND WAS ALSO BROKEN THE UH RIGHT FRONT WHEEL BEARING, AND HAD TO GO DOWN TO WINNEMUCCA (NO LUCK IN ORONADA AND PARADISE LOOKED UNPROMISING) FOR IT AND SUNDRIES SO FINALLY DECIDED TO HEAD FOR THE BLACK ROCK AND HOT SPRINGS, BATH CAMP AND GENERALLY FART AWAY THE AFTERNOON THE NEXT DAY UP AND LOOPING LOOPED TO SOD HOUSE OVER BUCKSKIN INTO THE OWYHEE, OUT AT RATTLESNAKE OVERLOOKING RECROSSED THE ALVORD TO FIND BOG TOO POPULOUS SO SLEPT HIGH ON ROTTEN COUNTRY BESIDE THE WINNEMUCCA-TO-THE SEA HIGHWAY, AN CLEARED UP AT ANTELOPE SPRINGS IN HART MOUNTAIN REFUGE OREGON BEFORE THE TOURISTS INSPIRED A CONFUSED RETREAT BACK DOWN TO CALIFORNIA REMEMBERING IT WAS FRIDAY AND FINDING THE FORT BRAD BLOCKED BY SNOW AT THE SUMMIT NONETHELESS FUELED BY DINNER, BEER AND HASH FINAL



H I G H D E S E R T

Michael Moore has been exploring and drawing the northern great basin desert for some years now. Another portion of his auto-biography at left (his life told via its cars) was published in our prececessor, Place *magazine. Most of the places evoked here are in northern Nevada and eastern Oregon. The drawings continue across two desert stories which follow.* —*SB*



drawings by Michael Moore

The Elsinore Cowboy's Goodbye

by D.D. Harmon

THE ELSINORE Cowboy said goodbye in April, a month no crueler than any other but with the remarkable talent for sudden winds that loosened the phone poles and misdirected the roadsigns and rearranged the trailer parks from 29 Palms to Kingman with the unannounced fury of a tropical cyclone, defeating not only the buzzards and crows and hawks but even the eagles who were forced inside caves to wait in the carrion stench of their own debauchery, holding their somnambulists' breath until May floated in with its bright oppressive heat which paralyzed the lizards in their holes and baked the rattlesnakes in the red shade of fallen billboards as the paint cracked and peeled in bright chips from the transoms and doorways of Needles, the whole town of sunburned natives yawning in dull anticipation, the awful thought of the coming summer breaking all their hearts, the specter of that fearsome season melting all their illusions, the mere mention of that flammable noun igniting all their sorrow, and the trainmen wept and the busboys whimpered and the dentists closed and the doctors vacationed and the Mayor retired and the butchers went on strike and the Indians got drunk and the divorced real estate agents got drunker and the auto mechanics got drunkest of all so that anybody who broke down in Needles in the late spring was stuck there til October when the terrible lethargy had finally subsided, and the beauticians took jobs in Vegas where it was just as hot but only half as dead because no matter what unforgiving hand the heat might deal, a gambler would be there to play it, and, worse than that, the whores left for Bullhead City to replace the regular girls who went to Florida for the summer, but were just as ugly as ever and cost twice as much now because the building was done up in a cheap imitation of television's late night westerns in which the dirtcaked dungsmudged outlaw spends his money in the velvetdraped parlor as the troops of fledgling actresses fight for a seat in the leading man's lap and horses whinny and the sun goes down the color of someone else's blood because what dollarminded film director in his right bank is gonna have the hero killed at the beginning of the picture such as I have done as the winds begin to lift and the lobstercolored hands can be seen in the windowsill of the second-story loft above the abandoned laundromat on Main Street, which the people of the town had suspected all along was a

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It was fantasist Ursula Le Guin, raving about her former student Dirk Harmon, who guided us to this tour-de-force "trance literature" from Needles, California, where the Colorado River meets the national weather reports ("and in Needles today the high was 130 degrees"). It is part of Harmon's forthcoming book from Capra Press (Box 2068, Santa Barbara, CA 93120) *Natives In Exile.* **—SB**

hotel for inveterate vagabonds and were right, of course, because, although they had noticed the doors were boarded and locks in place, the dim signs of life kept brushing at the upstairs' curtains and a slow accumulation of waste had built up in the alley behind the dilapidated structure that nobody could remember who owned, just as nobody had ever seen the occupant's face which was a mask of scars he kept in a box on the nightstand beside his bed of misfortunes, and the policemen quit and the Marines were transferred and only the Highway Department was left to restore order as the carpenters and plumbers and architects stole cars and fled to Los Angeles, so that all that remained of the original product was a main artery of empty bars and closed offices, a few blocks of blistered housing, and an occasional lone coyote wandering in the railyards, while the last human inhabitants curled up next to the air-conditioners and read everything from Reader's Digest to the Bible aloud to the stifling silence that could not hear them for the humming in its ears.

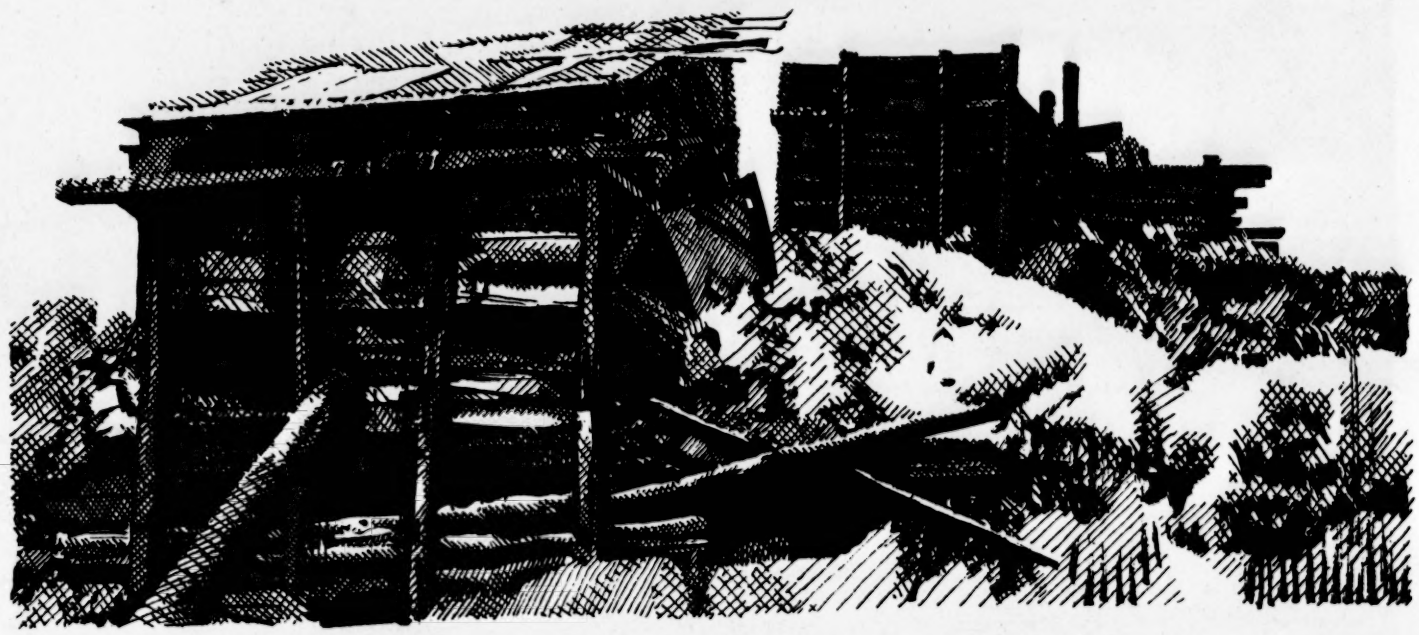
HAD IT BEEN September he might have tried to hold on, but springtime in the desert was only the careless match tossed towards the vacant lot of August, with its slow wick that burned the days away fifteen hours at a time, accompanied by the sounds of desperate rodents drowning in the coils of shedding snakeskin, and the mosquitoes plotting like a country of anarchists in the isolated pools that the receding river left in the alluvial basin above Topock, and the scorpions brewing their venom in the darkened laboratories of the earth, and the bones of dead goats disintegrating into clouds of lethal and in invisible dust so that no one could be sure if it was safe to breathe and some ardent citizens refused to do so until the seasonal threat lifted, but this obscure custom was halted soon after the season in which a busload of thirty tourists was lost in a flurry of decayed ram guts and the Governor's wife's nephew perished in the tragedy resulting in the midnight convention of the Town Council during which some whiskeyruined engineer came up with the Annual Colorado River Bridge Collapse, sponsored jointly by the Highway Department and the Junk Dealers Association of Needles, a profitable arrangement for both interests, enabling the Highway Department to demand huge sums of money from state governments on either side of the river, as well as assuring year-round work for its employees, who were expected to design and construct and destroy the bridge themselves, relying solely on the junkyards for all the scrap metal they could find (which was a considerable amount from mid-April through late September when the mechanics were all too plastered to work and every broken down car, truck, bus, or motorcycle was left to the brutal garage of the sun for any repairs

that had to be made) and out of their own generous pockets they supplied the rusted vehicles that were placed on the bridge for realistic effects, the gala event advertised on billboards that the Highway Department provided in both states and as far away as New Mexico and Oregon so that on that dreadful morning in July the town was momentarily alive as the motels filled up and the restaurants reopened and new paint-jobs adorned the bus benches and phone booths while the crowds kept arriving from Boston and Spokane and Akron and Omaha with the kids and the dogs and the ice cream melting into the textured carpets of station wagons, everyone standing around the only pool in town telling each other how someone else had said it was better than Busch Gardens or the Grand Canyon, advertisement mythologies that were quickly dispelled when on that appointed midsummer morning they all drove out to Topock with a picnic lunch of bologna sandwiches and beer and were dismayed to learn that the bridge being collapsed was neither the legendary fourlaned Route 66 nor the Santa Fe line nor even the renowned London Bridge of Jack the Ripper fame, moved in piece by piece from Havasu City where it had been imported for similar reasons of attracting business and was therefore too expensive to explode and rebuild year after year, but instead a slim aluminum pole sustaining from wires a sagging lane of asphalt upon which the donated pickup trucks looked like a careless child's misplaced toys, and the same overweight Highway Department official who had ever so proudly announced the completion of this bridge two months earlier now just as proudly proclaimed its destruction by dynamite as a great link between two brotherly states, blah-dee-blah-dee-blah, while the sun crept higher into the sweatstained morning sky and housewives from Decatur fainted and senior citizens from Maine suffered heatstroke and the whole crowd was in such deep personal turmoil by the time the speech was over that the ensuing explosion was an insignificant flash in the pocket cameras of their memory, and even the most alert of those present could not tell if the collapse had actually occurred or if the whole thing had been induced through solar hypnosis.

APRIL WAS A prelude to the fierce high whistle of the train at the station down the street, stopping for precious water while the passengers suffocated in the almost motionless quality of time and the long years of loading and unloading went on interminably in the shadeless noon heat, the 115 degree swelter of his garret above the laundromat like an oven which he stared out of, and he could feel his own ribs roasting against his intestines as he watched the trains come and go, wincing with the painful thought of yet another year, another summer, alive and alone, the

calendar in the tiny kitchen dusty with neglect, the clock on the dresser unwound, his wristwatch broken, as if he had decided finally to ignore the relentless tapping of their feet as the angels approached, and his sadness was intolerable for the tapping had the same staccatto clop of horse hooves, and the days of his youth in Elsinore galloped across his heart, impaling in it the permanent drumbeat of nostalgia and his father, too, stood next to him and wept, muttering over and over that the roosters must be silenced and the pig slaughtered and the ponies sold for such were the mutterings of ranchers in the Depression years of droughtstrangled California, and from his chair near the dirty window above Main Street he could still see the bloated figures of dead cattle lying in the driedout streambeds and sandybottomed waterholes, although anyone else would only have seen the rusting hulks of abandoned automobiles and the occasional stray coyote that went back and forth through the fugitive streets like a lost conquistador in some unmapped region, growling and frothing under the old man's window every moonless night in March, so that in April, along with his aching nostalgia for a past of musty sheds and dry wells came the fantastic and unbridled fear of dogs, which everyone knew were the real harbingers of mortality, and when the chorus of howls went up in the noon chill of his shooting star nightmares of death in all its stellar calamity he would kneel down in solemn prayer to a God he would not believe except that the sharp staccato rapping of His angels could be heard approaching with increasing speed, mixed imperceptibly with the hammerbeats of workmen assembling parts of next year's bridge on the loading platforms of the railyard where they would be put on flat cars and coasted the ten miles out of town to the sight on the river where another crew worked frantically to finish the bridge early, before the pitiless summer had the chance to wake and vilify the days with the smell of its scorching breath, and it was then, in April, that he decided to say good-bye once and for all to the world of his memories and his forgotten acts for the entire story of his childhood, his maturity, his old age, was the only currency he had left for the landlords and tax-collectors of his too, too long life.

HE MADE A CUP OF instant coffee which was weak and sweet as he preferred it and he sipped lightly while it cooled, mulling in his head the correct thing to say, the proper words to use, which would be his farewell to the town and to the desert and to the mountains in the south stabbing at the skyline like rusted knifeblades and to the river in the east ploughing from dam to dam in its long path of prehistory winding through the rocky corridors like a worm down the spine of some ancient fish imbedded in the



sedimentary ocean of the Mojave, and as the hot brown liquid kissed his weathered lip of tears — the Elsinore Cowboy — whose name was unknown, whose age was uncertain, whose motives were hidden, whose boots were torn, whose clothes were black, whose color was white, whose occupation was wishing, whose faith was weak, whose game was lonely, whose patience was unrewarded, whose tired blood was a miracle of geology, whose too long life was a plot against him, whose faded voice was the scratching of stones, whose wrinkled skin was the color of windblown sand, whose pale eyes were grayer than rain, whose wounded heart was more porous than a coral beneath the oceanic bedlam in his soul — the Elsinore Cowboy — whose only expectation was a moment of public consequence before he died, gave a deep sigh of discontent and slumped forward to embrace the sudden April gale that swept in through the taped glass and blew the electric lamp into the washtub which was still half-full of brackish mosquito larvae and mildewed eating utensils, all the power on the block shutting abruptly off as that unnoticed legend of loose bones dropped to the floor and the lamp shot green sparks of diffusing energy into the fetid air of his death throes which were violent and quick.

ALL HELL BROKE loose in that infamous month of wellbred disasters as the faulty wiring of the abandoned laundromat sang with electricity and exploded, sending shock waves across the street to the railyard where trains derailed and tracks switched and signals failed while the waves of rampant power surged backwards to its source, the town generator, and the flames leaped two hundred feet over the ashbeds of the courthouse and post office and barber shop which were all instant victims of the fire's instinctive thirst for driedout beams and porches and walls, an entire block reduced to cinder along with the laundromat while the strange dominoes of destruction kept tumbling, the heat from the fire igniting gas lines that lead out of town toward the river where they all connected in a white mire of tubes and tanks which needless to say exploded beside the nearly completed bridge, collapsing with it a truck, a tractor, a crane, and a ten man crew from the Highway Department, so that when people looked out their windows on that immemorable day in April each one thought privately to himself it was time to leave, not so much because of the black column of smoke rising from the town square, nor the sirens of the ambulances rushing out to Topock, nor even the notion that the incredible summer was already on its way, but because of the pervasive echo of his final good-bye which seemed to haunt the burning air. ■

Michael Moore

Dirty Sock Mineral Springs

by Richard Sassaman

GARY ATTEMPTS A MURDER while I sit and watch, typing out the details. Both victim and victimizer are much larger and stronger than me, and it's none of my business anyway, so I sit and watch. I have never seen a ritual killing before; the fact that I have Barry's typewriter here in the Owens Valley and am sitting at a beat-up picnic table typing before the whole affair starts to unfold in front of me lends a surrealistic overtone to the event, makes me think it's all coming out of my mind. Barry makes dinner across the parking lot, and is unaware of the whole drama.

We are at the Dirty Sock Mineral Springs Campground, which lies low in the desert 100 miles west of Death Valley looking like a knife fight in one of those Mexican border towns, Tecate or Snoita or Rumorosa. Broken glass and trash litter the barren parking lot lawn; piles of dog excrement and rubbish fires in the wastebasket oil drums highlight the scenery. A rickety weather-beaten fence circles the camp. When the sun goes down the wind blows sheets of sand across the landscape.

Huge cracks have developed as the walls in the pit toilets and between the men's and women's changing rooms have collapsed. The changing rooms serve the small mineral spring at the center of the camp, a smelly round sulphur pit lined with slime and algae.

All day bikers roar in and out of the spring campground, sloshing drunkenly in the warm water before speeding off into the Owens Lake environs. At dusk a 270-pound local with long blond hair and beard leaps from his '53 Chevy truck belly first into the pool. His friend Ron down the road, a wrecker, drives Charles Manson's attack dune buggy. Charlie himself spent weekends at Dirty Sock, swimming nakedly in the slime with his female army.

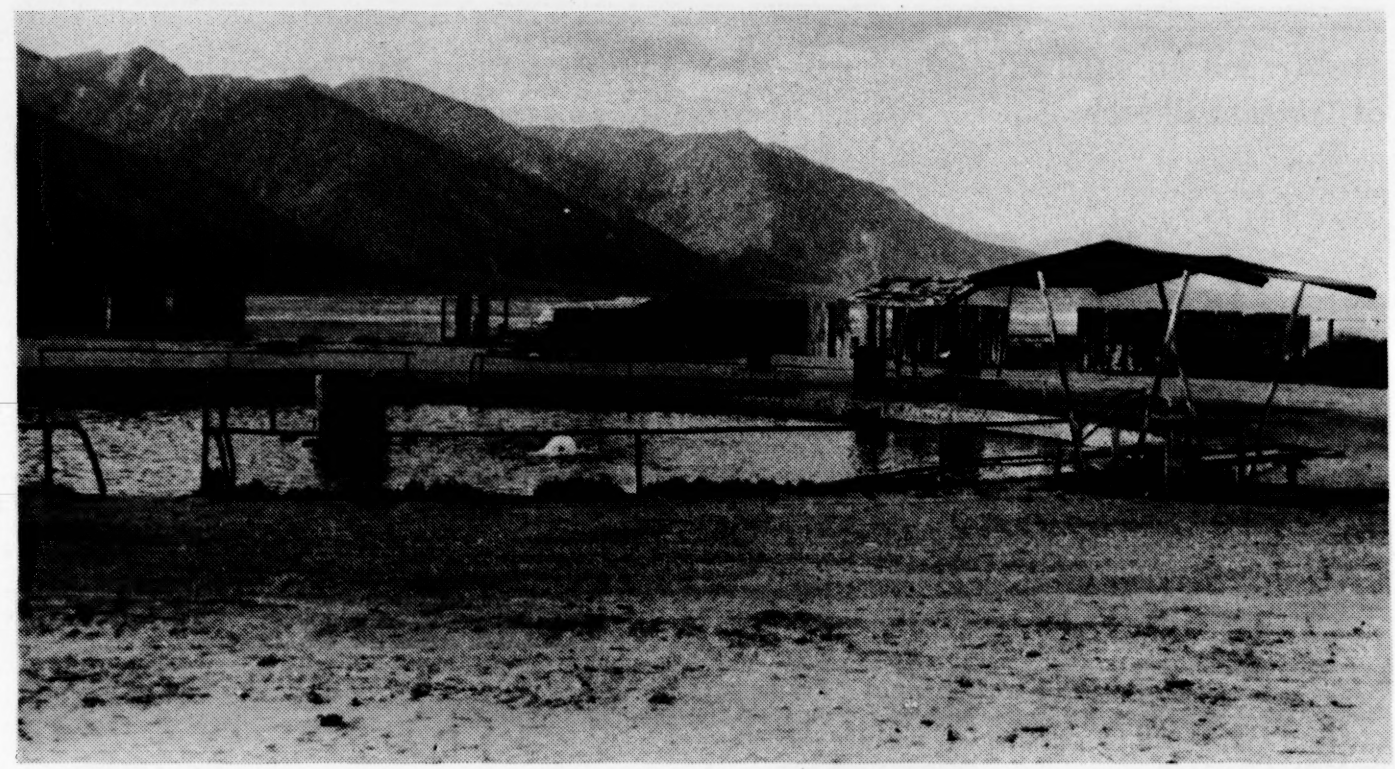
It is not a campground rated PG.

Many years ago a doctor tried to start a health spa here – the bubbling fountain in the spring shot way into the air, people came from miles around paying to get in – but the main building burned down and the place fell into disuse. The county took over, the county ran out of money, and all that remains is the view. Some view.

West of Dirty Sock the high Sierras just below Mount Whitney rise over Owens Lake up and out of the valley abruptly, jutting up from the salt flats waving their alluvial fans like a sprightly old exotic dancer from The Block in Baltimore.

In the past three years Richard Sassaman has walked, ridden, and driven over 120,000 miles in the 48 connected United States, listening, observing, and taking notes. The episode related here is from a series of articles about the California desert. Many of his adventures show up in the first of three as-yet-unpublished novels, *On the Road to Find Out*, which deals with our nomadic lifestyle, national parks, and the cult surrounding the UFO messiahs.

–*Richard Sassaman*



Barry Lavine

The scene at Dirty Sock Mineral Springs shortly before the events reported here. The author sits typing by the slimy pool; Barry Lavine snaps the shot. The Sierra Nevada range ranges northward, walling out California. "The mountains are as silent as I am, watching to see what will happen next."

The western side of the Sierra range from Kings Canyon to Sequoia to Yosemite National Park has the press agents, gets all the glory. The real backbone of these mountains, though, the part that only the bear who went over them has gotten to talk about, is right here leaping from the desert like two miles of bat guano stacked on the deck of the *U.S.S. Lexington*. Cartographer Erwin Raisz saw God here in Inyo County.

Gary and his brother appear as I sit typing late in the afternoon by the mineral spring. They pass time drinking Coors beer and splashing through the water until Gary, a self-styled "thirty-six-year-old man," flops over in my vicinity.

"You a writer?"

"Yes."

"I thought so. I saw you looking around at the mountains, the sky and everything. I'm a thirty-six-year-old man, I got one brother who's a queer, he's 6'3", a 6'3" Hollywood queen, and I've been to Cook County, Chicago, and I'm not bragging, but I've got to drown him."

Gary looks at me for a reaction but I don't know what to say. The Born To Raise Hell tattoo drips water from his chest while he continues. "Now that'd make you one hell of a book, wouldn't it? He's my brother, and I have to do it, he keeps calling up his parents in the middle of the night, fifty-nine and sixty-three years old, calls them no-good motherfuckers, causing trouble. I asked my bigger family what to do, and I gotta drown him. He has no appreciation."

The man in the background gives a hoarse laugh and lisps for pity. "He still thinks I'm sixteen, you know, I'm not. I'm forty." His brother drinks a bit more and advances slowly across the shallow pool. "Gary don't do that," the bigger one says, "you scare me when you do that."

"You've had the last supper, I gotta do it brother," Gary says, and with a leap he shoves his brother's head underwater, until it breaks free sputtering. The mountains are as silent as I am, watching to see what will happen next. There is more struggling, more drunken frenzy until the aggressor finally ceases, and his target falls weeping to the side of the spring.

Gary returns to my side.

"I couldn't do it, you saw me. I couldn't do it. He's my brother and I couldn't do it. Now I'm a dead man. They said if I didn't do it I'm a dead man. If you find a corpse down the road it'll be me. I couldn't drown my brother, you saw it. Now I'm a dead man."

Blood is thicker than mineral water, and another potential victim has survived in the desert. The brother calls from across the spring where he has stopped crying. "You're not going to write all this down, are you?"

"Yes I am," I say. I already have most of it on paper. "What's your name?"

"Tatyana Alexandrova. If you write this down make sure you say that I'm younger and prettier than my brother." ■

Nomadics

The Art and Adventure of Traveling Cheaply

We've seen plenty of travel books. All have been competent and a few downright enticing, but none have really tangled with the unmentionables – border trouble, bribes, black markets, and other sub-official situations. This handbook tells you not only what you should do and what you should not, it tells you what you can get away with. As a bonus, there is a chapter (by a woman guest editor) on women's special concerns such as how to deal with hassling by foreign men. The money-saving tips promised in the title are served up as advertised. Most of the information shown in other general travel books is there too. Nice job. *–J. Baldwin*

The Art and Adventure of Traveling Cheaply
Rick Berg
1979; 226 pp.
$4.95 postpaid from:

And/Or Press
1409 5th Ave.
Berkeley, CA 94710

or Whole Earth Household Store

"For men of honor there are no borders." Told to me by a Colombian border guard who had just accepted my bribe.

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Even when prices appear to be fixed, haggling is the rule in almost every country. Vendors in markets will usually come down about 25 per cent on food and other staples (other than canned and bottled stuff), and 50 per cent or more on clothes and tourist items. You'll do worse if you look rich and have a lot of newly purchased goods with you that show you're an eager buyer. Never act eager. And never pull out a wad of cash.

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To really make big money, you can perform in simulated sex shows in Tokyo for several hundred dollars a night. Attractive women are almost begged to work as waitresses or escorts in Singapore and Hong Kong. These jobs involve no further obligations and pay up to $100 a night.

No one who had ever worked at one of these jobs has left without at least one outrageously funny experience. A woman from Iowa who was making big money at a club in Hong Kong was offered $1,000 by a Chinese gentleman as an inducement to find a more respectable job, even though her work never went farther than waiting on tables. She gratefully accepted the money, quit her job, and resolved never again to live in sin.

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Once the hustle is over, the boys can be mighty interesting. In Morocco, for example, most of the young hustlers speak five languages and have more street savvy than any of us ever will. They know all the tricks and can tell you where the bargains are. All over the world they'll climb palm trees for you and catch you a fish dinner. A small tip will suffice; be sure you don't give a boy more than his father earned last week.

The Bed & Breakfast League

The cheapest way to travel is have travellers come and stay with you. Rather than move out of your house when the kids grow up, use their rooms for interesting income. Help kick the Motel Moloch's shins. Become a Bed & Breakfast host (or guest). Contact the Bed & Breakfast League, 20 Nassau St., Princeton, NJ 08540.

–SB
[Suggested by Eric Utne]

The Magic Bus (Europe & east)

Dear Whole Earth,

There's a travel service in Europe called the Magic Bus that provides transportation between Paris and many European points (including London) at a price substantially less than the regular bus/train fares. The Bus also makes trips to Morocco, Yugoslavia, Greece, Turkey and India. In the fall of 1979 the one-way fare from Paris to Delhi, India was $250 (not including food or lodging), and that fare allowed stops in Athens, Istanbul, and Teheran (before the most recent troubles in that country).

I've heard some wild stories about the longer trips – afghani outlaws and border hassles – but my buses between London and Paris and Lyon, France were on time, modern, and peopled with a very agreeable mix of ages and nationalities (except for the lady from L.A. who giggled long and loudly over the fact that the Frenchman taking our tickets in Paris had a French accent).

The parent company organizing the Magic Bus is called 'Les Voyageurs Associes' and they also organize a number of other package tours and charters all over the world.

Bon Voyage,

Steve Dunnington
Seattle, WA

You can get Magic Bus tickets and information in France at:

Les Voyageurs Associes
28, rue du Pont-Louis-Phillipe
75004 Paris
Tel. (1) 887.51.70

9 quai des Salinieres
33000 Bordeaux
Tel. (56) 91.12.81

69, rue de Zurich
6700 Strasbourg
Tel. (88) 36.48.77

or, in England at:

The Magic Bus
66, Shaftesbury Ave.
W. 1, London
Tel. 439-8471

or, in Holland at:

The Magic Bus
Damrak 87
Amsterdam
Tel. 24.10.21

or in Greece:

24 Kidathineon,
Plaka Athens
Tel. 322-4407

Hosteling USA

Now you can read up on hosteling without becoming a member of AYH (American Youth Hostels), though you might want to join after you see what they offer. A membership lets you stay at more than 200 inexpensive hostels in the USA and something like 5,000 more around the world. You'll meet all sorts of other travellers, exchange lies, make alliances, and perhaps modify your plans after hearing of some more interesting option from someone who's just been there. This book has some mediocre general tips on trip planning and travel, but its main use will be the comprehensive listing and descriptions of all the hostels in this country and their associated customs. I can tell you from considerable experience that hosteling can be a good way to go, especially if it's your first time out. *–J. Baldwin*

Hosteling USA
(The Official American Youth Hostels Handbook)
1979; 220 pp.
$5.95 postpaid from:

East Woods Press
Fast & McMillan Publishers, Inc.
820 East Boulevard
Charlotte, NC 28203

The official **Youth Hosteler's Guide to Europe** – For the group or independent traveler. How to go, what to see, complete walking, cycling, camping tours, maps, charts, bus, car, rail information – To get the most for the least cost. MacMillan, 500 pgs., paperback, $5.25 including mail and handling and mailing.

The Complete Guide to China

Just the very idea is tempting, isn't it? Since going over there on your own and traipsing around isn't permitted, a guidebook such as this one can be very useful. Dr. Saunders starts with the essential visa and the mechanics of getting together the required group. He tells you what to expect at the border, how to be polite Chinese style, and how to get along with your interpreters and guides. There will probably be some culture shock, so there's a bit about that. (How would it feel to be walking down the street in a big city and have a mob following you?) In short, a typical, competent guidebook but with a very personal touch stemming from his recent firsthand experience. I've left the best to last: the color photographs are enough to inspire you to rash action! —J. Baldwin

The Complete Travel Guide to China
Hilliard Saunders
1979; 179 pp.

$6.95 postpaid from:
China Publishing Company
P.O. Box 342
Seal Beach, CA 90740

Trips arranged through a travel agency are advantageous in that they require minimal effort on the part of the travelers. Details, deadlines, and responsibilities are handled through well-established international networks. No direct fee is levied on the passengers by the agency, so the cost is not increased. On the other hand, there are distinct rewards to those who are able to organize their own tours to China. There is greater freedom in choosing the tour members; there is some control over the cost of the trip (one might choose less expensive air routes and hotels, for example); there is a greater likelihood of visiting the Chinese cities one prefers to see; and there is the additional advantage of being considered more as a guest than as a tourist by the Chinese. Those with a spirit for adventure and a willingness to assume the necessary responsibilities would be well advised to consider organizing their own tour of China.

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The Chinese are honest people. As a result, travelers need not worry about articles being pilfered from their hotel rooms or pockets. On the contrary, you will find it difficult to throw away worn articles; the Chinese will return them to you.

Cheap birdcall

Dear Editors,

This is a suggestion for people who might be interested in birdwatching. To attract perching birds make the sound when you tell someone to be quiet: "shhh . . ." Purse your lips at even intervals: "pshhh . . .", "pshhh . . .", "pshhh . . ." and continue for a minute or more (shorten this time if you have high blood pressure). I've noticed that chickadees and warblers are affected strongly by the sound in the spring — one almost sat on my head. (This sound has little or no effect on birds of prey or waterfowl.)

If you're driving down a country road and spy a bird close by, stop. Stay in the car and make the pshhhing noise out the window, with binoculars handy. Birds are less fearful when they don't see a two-legged creature around.

The best places to look for birds are along the edges of streams and ponds; on powerline trails, along the edges of forests, places where there is a variety in vegetation (some open land and some trees and bushes).

Sincerely,

Sheila Hughes
Oakland, Maryland

Starting Small In the Wilderness

The grim possibility of having to drag a squalling brat down the trail to a rejected dinner and a soggy bed has kept many families from enjoying the beauties of wilderness adventure. Many unexpected problems can arise with the kiddies along, but with this long-needed book you'll likely be able to handle things OK. Common problems such as where to get child-size equipment and what to do about picky eaters are discussed with a convincing knowledge that can only have been gained from the field experience of what must have been hundreds of familes. The book deals with bike, canoe, and ski trips too. The tone is encouraging. The quality is high in the expected Sierra Club manner. —J. Baldwin

Starting Small In the Wilderness
(The Sierra Club Outdoors Guide for Families)
Marlyn Doan
1979; 273 pp.

$6.95 postpaid from:
Sierra Club Books
Book Warehouse Inc.
Vreeland Avenue
Totowa, NJ 07512
or Whole Earth Household Store

Getting children to enjoy carrying a loaded frame pack requires some parental ingenuity. Toting gear is work. Parents must somehow disguise or soften that fact for youngsters.

A good principle is to begin small, both with pack size and weight, and to start young children with some kind of soft, frameless pack (see Chapter 4, "Frameless Packs"). If youngsters carry something every time the family hikes, they will grow up thinking that pack toting is perfectly natural.

Backwoods Ethics

One of the more intractable dilemmas in this age of dilemmas is the problem of encouraging people to appreciate the beauties of wilderness while at the same time preserving wilderness. The problem is very complex, and made even more so by the unwillingness of old-time wilderness lovers to be regulated: (indignant) "WE don't throw cans along the trails." I am happy to report that this book is just what's needed right now. Oh, it doesn't avoid outraged horror stories, but the primary message isn't guilt-inducing, which never seems to help anything; it's mostly this-is-what-we-can-do. I found a lot here that I had not accurately thought about myself, even with 30 years of trail experience behind me (no cans). This discussion will be particularly helpful for those of us who attempt to influence legislation. Good job. Thoreau Lives! —J. Baldwin

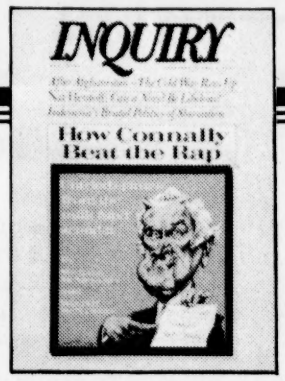
Backwoods Ethics
(Environmental Concerns for Hikers and Campers)
Laura and Guy Waterman
1979; 175 pp.

$5.95 postpaid from:
The Stephen Greene Press
Box 1000
Brattleboro, VT 05301
or Whole Earth Household Store

A subtle and sensitive argument against fires concerns their effect on the relationship between the camper and the night. Fires have a hypnotic effect — that's part of their attraction. They draw your eyes and you sit gazing into the flickering flame and glowing embers. Meanwhile, you lose contact with the woods around you, the stars above you, the wildlife (which gives your fire a wide berth), and the silence and sounds of nocturnal nature. The campfire is its own uniquely satisfying world — but it tends to isolate you from the larger natural world around you.

Libertarian Periodicals

by Jay Kinney



We hold that all individuals have the right to exercise sole dominion over their own lives, and have the right to live in whatever manner they choose, so long as they do not forcibly interfere with the equal right of others to live in whatever manner they choose.

— from the Statement of Principles, 1980 Platform of the Libertarian Party

To try and sum up any political movement or philosophy in the course of a handful of magazine reviews is to do a disservice not only to the movement but to the reader as well. That would certainly be the case with Libertarianism, a movement whose increased intellectual and electoral activity is coupled with as bewildering an array of publications, feuds, caucuses, shifting alliances, and offshoots as one usually associates with the more traditional Left or Right. Yet with the recent libertarian candidate for Governor in California drawing nearly 400,000 votes at the polls, and the Libertarian Party (LP) second only to the GOP-Dems nationally, one can hardly ignore the movement much longer.

Right off the bat it should be noted that the libertarian of today is not the same as those answering to that moniker in times past. Traditionally, "libertarian" has been a synonym for "anarchist," implying an opposition not only to the State but to Capitalism as well. Most current users of the term however (particularly those associated with the LP or the journals mentioned below), usually champion the notion of minimal government (often called "minarchist") while singing the praises of laissez faire capitalism (a la Ayn Rand or the Austrian economist Ludwig von Mises). It's an ideology with particular appeal for small businessmen and the broad middle-class whose pursuit of the American Dream has met increasing obstacles in the last decade.

With some hard-line anarchists determined to maintain their own use of the term "libertarian," things can get pretty confusing. Increasingly, though, common usage is favoring the new-comers and the new definition.

For the reader curious to figure out this recent political hybrid, several periodicals can be recommended. **Inquiry, Libertarian Review, Liberty,** *and* **Libertarian Vanguard,** *all published in San Francisco, represent the more radical wing of the movement, while* **Reason** *and* **Frontlines** *from Santa Barbara, California, represent*

Leonardo

Most art books and magazines are about the product of art, with lots of four-color pictures to wow you. **Leonardo** *is the opposite. It's pure process, pure tool — TECHNIQUE — of the most advanced, most refined, most in fact modern of arts. (The news stays the same in this world; only science and technology change, and art chases them.) I view this publication with the same contemporary fascination as* **Science** *or* **New Scientist.** *They announce the present (i.e., future).*

Not cheap, not for browsing. Lay out the bucks and make the magazine earn it back in your work or settle it all at your library. *—SB*

Leonardo
Frank J. Malina, Ed.
$20 /4 issues from:
Pergamon Press
Journals Dept.
Maxwell House, Fairview
Fairview Park
Elmsford, NY 10523

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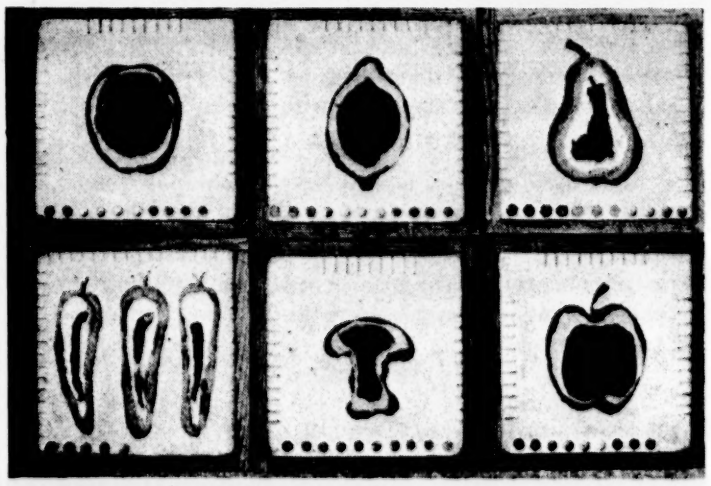
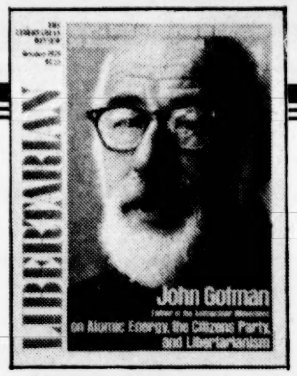
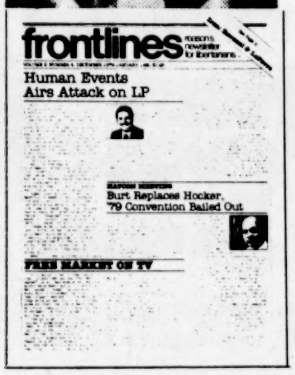
Abstract — Roy Adzak describes his work after 1968 dealing with the making of negative forms of inorganic and organic objects. He has produced three different series. In the first, the 'Dehydration' Series, he obtained imprints of fruits and vegetables in cement and he left them in the hardened cement molds to display them during and following their dehydration. Similarly, fresh fish suspended by nylon threads were dehydrated, their shrinkage following dehydration being revealed by tabs on the threads. The 'Textures' series is comprised primarily of shallow imprints of natural objects and artifacts in plaster to display their structural surface characteristics. The series was extended to include photographs of surfaces, such as those on water which cannot be recorded by the imprint technique. The 'Anthropometric' series includes imprints in plaster of parts of his body. His major effort, however, was to obtain 'interior imprints' — that is, physiological records of organs, bones, etc. inside his body. Illustrations are given from these three series and he describes thoughts he has had that induced him to pursue work in these directions.

Abstract — Thorstein Veblen (1859-1929), an erudite and unorthodox economist of the U.S.A., is noted for his institutional analysis of economics and is best known for his first book, **The Theory of the Leisure Class.** Scattered through his several works is evidence of his firm functionalist aesthetic credo, a belief contemporary with and supportive of those of leading designers, architects and theorists. Although an admirer of William Morris' socialist writings, Veblen attacked the Kelmscott Press books as overly precious, deliberately archaic and only within the reach of the wealthy. He predicted that, unless the Arts and Crafts Movement adopted the spirit of the machine production age, it would be no more than an anemic fad. 'Art industry,' producing rare and costly goods, merely serves the wealthy, who are driven to display their pecuniary power through the conspicuous consumption of goods and services. Ornamentation, expensive and impractical materials and expensive hand processes are considered evidence of beauty, but there is a confusion between aesthetic value and the use of objects in flaunting wealth. Veblen saw the possibility of a fuller life for each member of society, and this would be achieved through machine mass-production. An economic aesthetic — straightforward, functional simplicity in consumer goods — was desirable on economic and on ethical grounds.







the more conservative wing. Attention should be paid to both poles to get a full picture of the libertarians.

INQUIRY *has my vote as the most consistently interesting political magazine around. Published by the Cato Institute, the "non-political" foundation set up by libertarian oil millionaire Charles Koch,* **Inquiry** *prints muckraking and opinions by liberals and conservatives as well as libertarians. The common thread throughout is a jaundiced distrust of government and vested interests, and a keen devotion to civil liberties. The result is an unpredictable (and graphically handsome) "united front" package which puts libertarianism's best foot forward in a refreshingly undogmatic manner.*

While **Inquiry** *has the brash flash of a two-year old,* **REASON**, *a libertarian old-timer at age eleven, follows a more stolid path.* **Reason***'s columns, ads, and readers' letters display an ongoing concern with individual economics — protecting investments, fighting inflation, and saving that "hard money." Yet within this conservative context which constantly threatens to revert back to the traditional far-right, some worthwhile truths are revealed: intriguing interviews with anarchist Murray Bookchin and Mormon doomsayer Howard Ruff; a bold investigative report on curious United Farm Workers funding; and monthly news briefs on government shenanigans around the world. Yet if* **Inquiry** *seems intent on seducing disaffected rad-libs,* **Reason** *has about it the air of a slightly stiff suburban Rotarian loosening his tie while he excitedly discusses abolishing the Income Tax.*

Interestingly enough in view of this, **FRONTLINES**, *the monthly "newsletter for libertarians" published by* **Reason**, *is another story altogether. Lively, gossipy, and informal,* **Frontlines** *covers all camps in the movement, giving blow-by-blow accounts of internecine tiffs, threatened firings, libertarian victories and defeats. At $1.25 for 8 pages, the price may be a bit high except for avid political sports fans. On the other hand, there's probably no better way to gain a compact overview of the libertarians. Highly recommended.*

In a movement as relatively recent and tightly-knit as the libertarian, one might wonder at the existence of yet a third slick-covered magazine, this called the **LIBERTARIAN REVIEW.** *Like* **Inquiry** *and Cato Institute,* **LR** *exists in large part due to Charles Koch's financial generosity. Originally an east coast tabloid,* **LR** *was purchased by Koch a couple of years ago and moved to San Francisco, with offices a block from Cato and Co.*

In **LR***'s 48 monthly pages, major issues confronting libertarians are examined at length (Abortion, Nuclear Energy, the Draft) while lengthy letters from readers and Milton Mueller's regular column on "The Movement" hash out different positions and strategies.* **LR** *can perhaps be best characterized as the movement's general theoretical journal.*

Sharing **LR***'s offices is the national headquarters of the Students for a Libertarian Society, a fledgling SDS-styled organization with over 80 campus chapters. Active in anti-draft demonstrations, SLS has gained much publicity recently. Their monthly tabloid* **LIBERTY** *primarily serves as a rostrum for SLS leaders to present their positions on hot topics such as nuclear energy and Iran. Whether libertarianism will catch on with students remains to be seen (though the impending Draft can't hurt). Following a recent face-lift,* **Liberty** *is one of the most attractive libertarian publications around and if it can be faulted on any count it would be that it seems very much the production of a central committee in San Francisco and is slim on SLS or campus news.*

Another increasingly significant tabloid is the **LIBERTARIAN VANGUARD**, *published by the Radical Caucus of the Libertarian Party (LPRC). The LPRC (which includes* **Inquiry** *editor Williamson Evers and indefatigable libertarian theoretician Murray Rothbard among others and represents approximately 7 - 10 percent of LP membership) acts as an inner-party lobby for strictly cleaving to ideological principles in the face of myriad opportunities to dilute them for electoral gain or expediency. The caucus portrays itself as revolutionary and, with Rothbard's guidance in particular, has evolved a Lenin-like notion of the need for "cadres" to work full-time for libertarianism. The* **Libertarian Vanguard** *under Justin Raimondo's editorship sports a rather intense vehemence in its editorial stance: traitors are denounced and the unrighteous condemned. In the* **Libertarian Vanguard** *the enthusiasm and fury of the libertarian movement's early days (when YAF drop-outs, Objectivists, and anarcho-SDSers predominated) lives on.*

Postscript: The Libertarians are intriguing. I find their idealism (and disdain for the traditional Left and Right) attractive, and their economics simplistic. But one thing is certain — we haven't heard the last of them. ■

INQUIRY
Williamson Evers, Ed.
$15/yr. (20 issues) from:
P.O. Box 2500
Menlo Park, CA 94025

LIBERTARIAN VANGUARD
Justin Raimondo, Ed.
$9/yr. (12 issues) from:
LPRC 3570-17th St.
San Francisco, CA 94110

FRONTLINES
Robert Poole, Jr. &
Marty Zupan, Eds.
$15/yr (12 issues) from:
Box 40105
Santa Barbara, CA 93103

REASON
Robert Poole, Jr., Ed.
$19.50/yr. (12 issues) from:
Box 40105
Santa Barbara, CA 93103

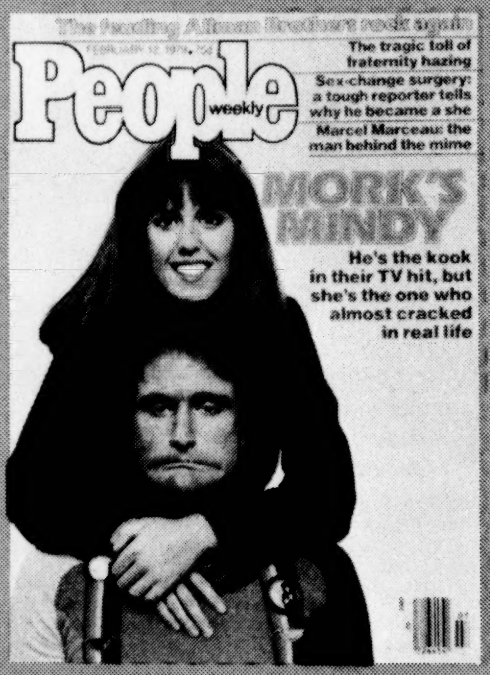
LIBERTY
Milton Mueller, Ed.
$5/yr. from:
Students for a
Libertarian Society
1620 Montgomery St.
San Francisco, CA 94111

LIBERTARIAN REVIEW
Roy A. Childs, Jr., Ed.
$15/yr. (12 issues) from:
P.O. Box 28877
San Diego, CA 92818

MAGAZINE SECRETS

by Tom Zito

Tom Zito writes a regular feature on magazines for the Washington **Post** *style section.* —*SB*



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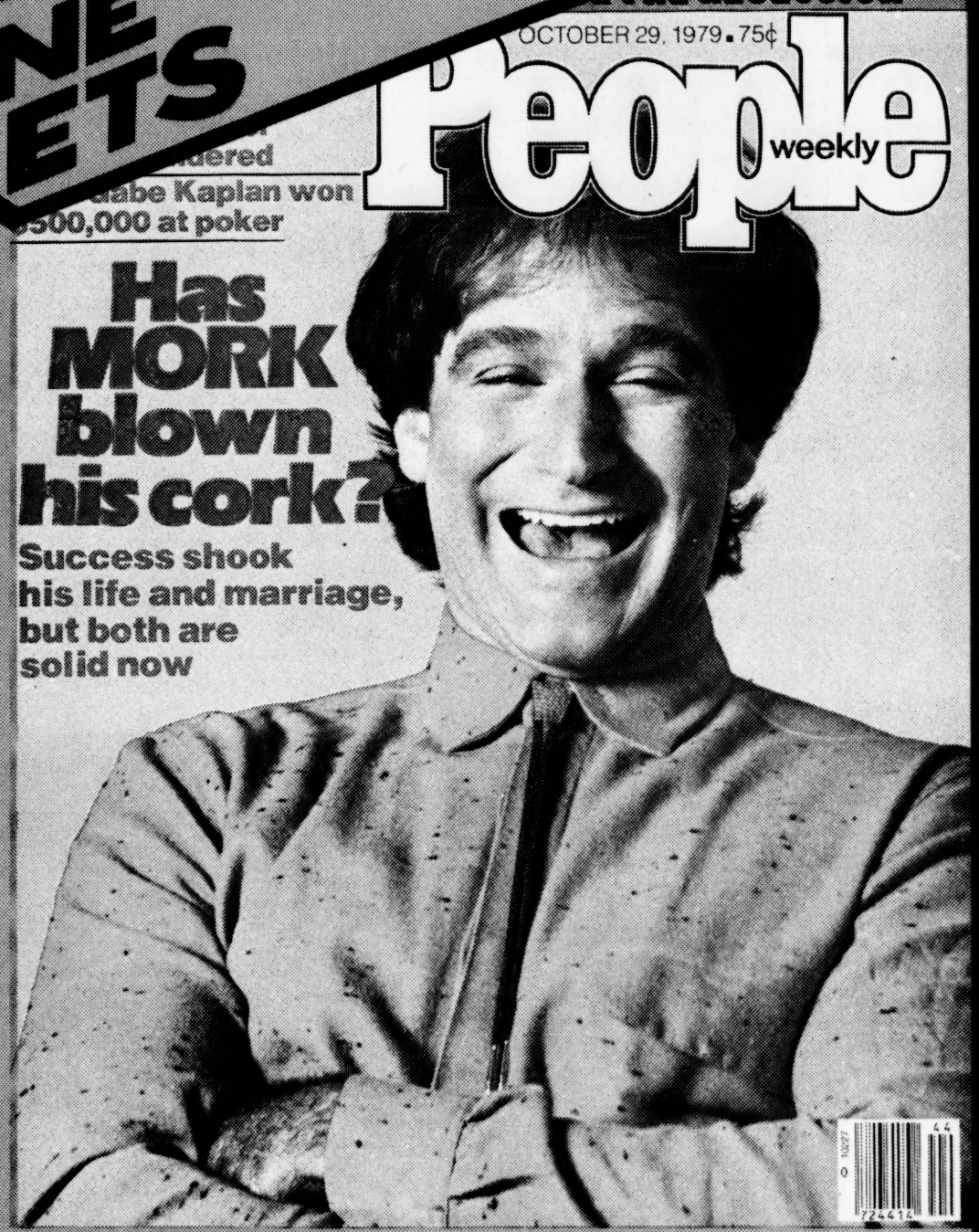


WORST SELLING

While there are more than 12,000 magazines published in the United States, the top 400 of them generate $7.3 billion in sales — or 94 per cent of the magazine industry's total annual volume. **Folio**, the magazine for magazine management, has analyzed the top 400 in a special report, $10 from P.O. Box 697, 125 Elm Street, New Canaan, CT 06840.

Nineteen seventy-nine was a roller-coaster year for magazines, with sales suffering a hard recession-related slump in mid-year and then bounding back strongly by December. In all, ad revenues hit $2.67 billion, up 13 per cent over 1978, the year that witnessed the deaths of **New Times, Viva, More** and **My Place**. December was a particularly strong month, up 19 per cent on December, 1978. Beyond the birth and death of **Look** and the purchase of **Esquire** by Tennessee unknowns Phillip Moffitt and Christopher Whittle, the year had four real high points, all of them new magazines.

GEO, a big, slick German-operated monthly that's pitched at the **National Geographic** crowd. **GEO**'s layouts tend to be more daring, its writing much snappier, its scope more eclectic than its 90-year-old predecessor, although the **Geographic** itself has been gaining real social consciousness in the past few years. One need look no further than the **Geographic**'s devastatingly good treatment of pesticides in the February issue.

SAVVY, the next logical step in women's magazines beyond **Ms.**, combining a slick sense of sophistication with an underlying demeanor of humor.

INSIDE SPORTS, a new monthly test-marketed in the fall that begins regular publication on March 31. Widely avoiding subjects too topical (that would ensure the death of any monthly), **IS** takes a fresh glimpse at the real personalities behind the public personas of sports figures, creating a magazine of interest even to folks whose first morning act is to toss the sports section into the trash can.

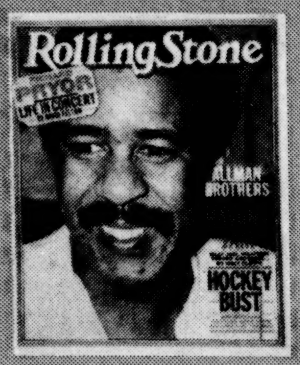
SCIENCE 80 bridges the gap between **Popular Science** and **Scientific American** in a bi-monthly magazine aimed at the curious but not terribly clever. Begun one year after **Omni** (which in its first year of operation gained a circulation of 753,587), **Science 80** may well serve as the model for several planned science magazines, including Litton Industries' **Next** and Time-Life's **Discover**, which is now being tested with a huge national mailing. Time Inc.'s interest in a science magazine was prompted by the generally favorable response of readers to **Time Magazine**'s science covers.

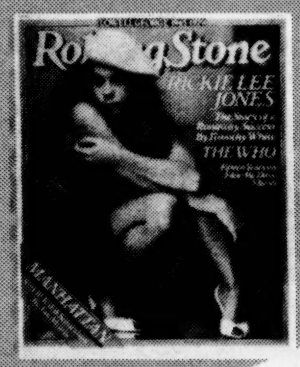
It is commonly assumed that the success of a particular issue of a magazine on the newsstands is highly dependent on its cover — both content and style. Here are the big winners and losers of 1979.

1979 worst-selling and best-selling magazine covers

Magazine	*WORST COVER*	*BEST COVER*	*Comment*
Time	Columnist Russell Baker	Drug smuggling	Second best was "How Gay is Gay"
People	Mork (in autumn)	Mork and Mindy (in February)	**People** has 2,038,988 newsstand sales and only 355,672 subscribers
Life	Dolly Parton	Salute to the '70s	**Life** now has 1,271,517 circulation
Sports Illustrated	Golf	Bathing suit issue	Golf always does poorly
Newsweek	Jimmy Carter "Giving Peace a Chance"	'70s wrap-up and "Mysteries of The Universe"	**Newsweek** sells 2.9 million a week, **Time** 4.3 million
Reader's Digest	"Betty Ford's Triumph Over Drugs and Drinking"	"How to Flatten Your Stomach"	Average circulation: 19,547,763
Redbook	"How Loving Partners Learn to Satisfy Each Other"	"The Wise Woman's Diet"	
National Lampoon	Depression	Heterosexuality	
Playboy	James Bond	Raquel Welch	Circulation up 14.8% to 5,538,559
Bon Appetit	Strawberry sherbet	Thanksgiving turkey	Staggering circulation increase of 24.8% to 1,115,563
US	The Oscars, then the Bee Gees	Cher, then Elvis	Though **US** was up 18.2% last year to 878,343, the **New York Times** is embarrassed by it and wants to sell.
Business Week	Teamsters	Special issues, then Mexico's oil boom	
High Times	"Greatest Scams of All Times"	"Highest Holiday Ever"	
Mad	Alfred E. Neuman	Superman	Circulation, 1.8 million. In 1979 Parker Brothers sold 1 million **Mad** board games.
Forum	Discomania	"Legs Are Back and So Are Stockings"	
Omni	Arthur C. Clarke	Anniversary issue, then Robert Heinlein and Carl Sagan	
New Yorker	Red snow shovel by C.E.M. (during winter's worst snowstorm)	Annual Eustace Tilley cover (John McPhee article inside)	
Rolling Stone	Richard Pryor	Ricky Lee Jones	
New York	Cuban nationalists in in New Jersey	"Greatest Photos of New York," then "Studio 54: the Party's Over"	
New West	"Secrets of the Track" (horse gambling)	"Goodbye to the '70s" (in January, 1979)	Check their hysterical parody of **Sunset** in February 11, 1980 issue
Esquire	"Hollywood vs. Harrisburg"	"The Truth About Today's Young Men" by Gail Sheehy	

WORST SELLING





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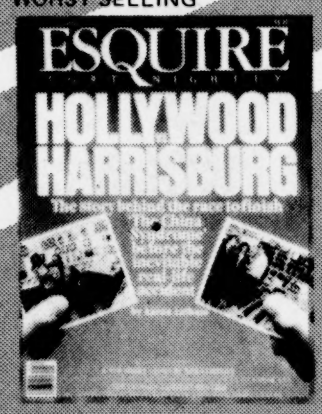

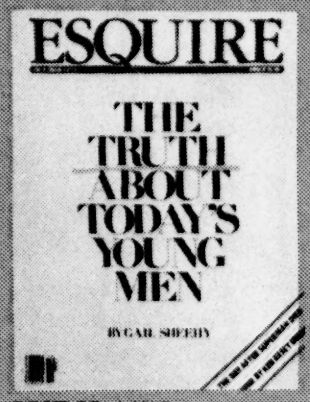

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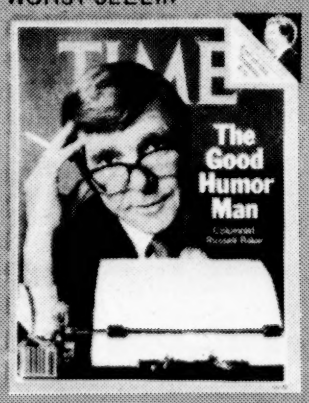

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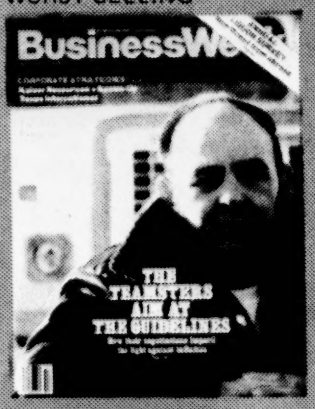

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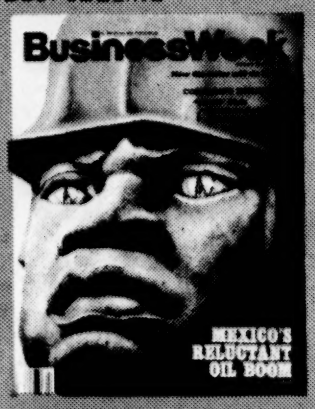


Dream of a Common Language
On Lies, Secrets and Silence

I began to read Adrienne Rich's work after a decade of interest in what might be called the relation of language to experience. I had learned – from the works of such thinkers as Bateson, Spencer-Brown, Laing, Langer, Popper, Foucault – about how our experienced reality is shaped by our language. I had received the Buddhist message about escaping the prison of beliefs and assumptions. But when I read Rich (and a very few other feminist writers, such as Susan Griffin) I was stunned to see how quickly and clearly feminist thought has come to the frontiers of these issues.

I think it's because feminism is political worldy – it addresses these "philosophical" issues in the process of dealing with who does the dishes, who sits on the Supreme Court, who we choose as sexual partners. Rich is at the cutting edge of feminist thought, but not limited by what is commonly understood as feminism:

There are words I cannot choose again:
humanism androgyny

Such words have no shame in them, no diffidence
before the raging stoic grandmothers:

their glint is too shallow, like a dye
that does not permeate

the fibers of actual life
as we live it, now.

Over and over, in prose and in poetry, Rich speaks truth, she reveals herself, she reveals me to myself. Her most powerful work is "Transcendental Etude" in **Dream;** *I know its equal only in Eliot's* **Four Quartets.** *Finishing it, I had that sense of there being nothing more to say, it's time for silence. Indeed, "Etude" ends with a compelling picture of a woman who*

quietly walked away
from the argument and jargon in a room . . .

But Rich is a poet, and she doesn't settle into the comfortable simplification "words are bad, silence is good" that sometimes tempts us:

What in fact I keep choosing
are these words, these whispers, conversations
from which time after time the truth breaks
moist and green.

–Alia Johnson

The Dream of a Common Language
(Poems 1974-1977)
Adrienne Rich
1978; 77 pp.
$2.95 postpaid

On Lies, Secrets & Silence
(Selected Prose 1966-1978)
Adrienne Rich
1979
$3.95 postpaid

both from:

W. W. Norton & Co., Inc.
500 Fifth Ave.
New York, NY 10036
or Whole Earth
Household Store

The liar often suffers from amnesia. Amnesia is the silence of the unconscious.

To lie habitually, as a way of life, is to lose contact with the unconscious. It is like taking sleeping pills, which confer sleep but blot out dreaming. The unconscious wants truth. It ceases to speak to those who want something else more than truth.

In speaking of lies, we come inevitably to the subject of truth. There is nothing simple or easy about this idea. There is no "the truth," "a truth" – truth is not one thin thing, or even a system. It is an increasing complexity. The pattern of the carpet is a surface. When we look closely, or when we become weavers, we learn of the tiny multiple threads unseen in the overall pattern, the knots on the underside of the carpet.

•

When we discover that someone we trusted can be trusted no longer, it forces us to re-examine the universe, to question the whole instinct and concept of trust. For a while, we are thrust back onto some bleak, jutting ledge, in a dark pierced by sheets of fire, swept by sheets of rain, in a world before kinship, or naming, or tenderness exist; we are brought close to formlessness.

—On Lies, Secrets & Silence

•

Today I was reading about Marie Curie:
she must have known she suffered from radiation sickness
her body bombarded for years by the element
she had purified
It seems she denied to the end
the source of the cataracts on her eyes
the cracked and suppurating skin of her finger-ends
till she could no longer hold a test-tube or a pencil

She died a famous woman denying
her wounds
denying
her wounds came from the same source as her power

—The Dream of a Common Language

How to Make and Sell Your Own Record

Our Jonathan Evelegh, who recently Made and Sold His Own Record, wishes to hell he'd seen this book first. All of the technical stuff is right, he says, but that's relatively easy anyway. What he blew it on was promotion, which the book emphasizes. With the savvy here and a good product, you can get sold, which means heard.

The current increase of independent record producers is good news indeed. –SB

How to Make and Sell Your Own Record
Diane Sward Rapaport
1979; 167 pp.
$9.95 postpaid from:

Quick Fox, Inc.
33 West 60th St.
New York, NY 10023
or Whole Earth
Household Store

A great deal of work needs to be done in advance of making your record. You need to identify your potential audience, to acquire a working knowledge of the media, to assemble mailing lists, and to design and print promotional materials, such as album covers, posters, or photographs. In addition, money should be set aside to meet expenses for promotional materials and such ongoing costs as telephone and postage. So many independents have spent their last dimes making their records sound beautiful and then have no money left to pay for an effective cover, much less for postage to send records to people on their mailing lists.

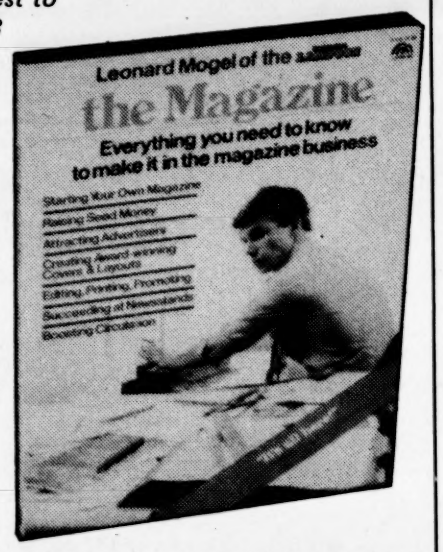
You will need to acquire a rudimentary knowledge of the promotional methods open to you and use them to gain performances, reviews, and airplay. By adding persistence, imagination, and old-fashioned *chutzpah*, you'll be surprised at the attention you can attract.

The Magazine

Many people dream of starting their own magazine. If your dreams get past this book, they're probably worth pursuing. The book's oriented to Madison Avenue magazines which hope to make lots of money some day; so small press publishers may justifiably get impatient with all the discussion of selling ad space and surveying readers. And it's almost useless on graphics (try **Editing by Design** *instead). But it has an uncommonly accurate picture of the financial priorities and ambiance of big-time print media, much of which is useful for small-time as well.*

—Art Kleiner

It occurs to me this book might be of great interest to magazine readers. —SB



The Magazine
(Everything you need to know to make it in the magazine business)
Leonard Mogel
1979; 192 pp.

$7.95 postpaid from

Prentice-Hall, Inc.
Box 500
Englewood Cliffs, NJ 07632
or Whole Earth Household Store

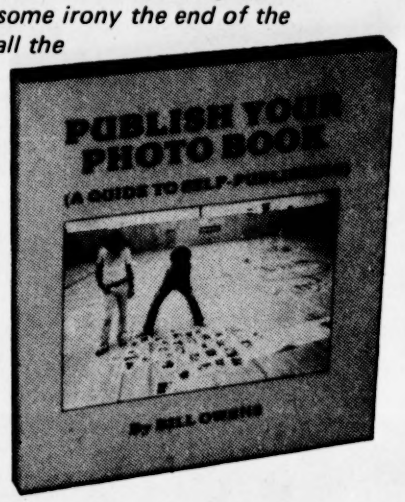
A magazine has a lifetime – ten, twenty, or fifty years. (Witness the death of the original **Life, Look,** and **Saturday Evening Post.**) The editor must constantly infuse the magazine with the dynamism that will keep readers stimulated. There must always be an atmosphere of excitement in the magazine – in its graphics and in its writing. Many readers subscribe to magazines out of force of habit, year after year. Compare them to the readers who anxiously await each issue. The successful editor is the one who innovates, who takes chances all the time.

•

The would-be editor or magazine writer can begin by becoming familiar with the local city magazine. What may begin as a small free-lance assignment can often lead to a full-time editorial job. These staffs function very much like any other magazine but often rely on local "stringers" (part-time reporters) for leads and ideas for new articles. As a training ground for editors, the city magazine is excellent, and it does not require the writer to leave his or her home and relocate to New York to find quality-magazine employment.

Publish Your Photo Book

With the same unvarnished honesty of his **Documentary Photography** *(Winter '78* **CQ***) professional photographer Bill Owens shows how. With some irony the end of the book turns on itself and tells all the embarrassing details of how* **Publish Your Photo Book** *itself was made. —SB*



Publish Your Photo Book
(A Guide to Self-Publishing)
Bill Owens
1979; 143 pp.

$8.95 postpaid from:

Bill Owens
P.O. Box 687
Livermore, CA 94550
or Whole Earth Household Store

Do be cautious on the first printing. I wouldn't do more than 500 copies, unless you know your market.

Do have the printer save the press plates and negatives as it is a lot cheaper to go back to the press on the second printing.

Do price your book at about four or five times manufacturing costs. If it costs $3 to manufacture, sell it for $12.00 to $15.00.

Don't waste review copies. The review list, pages 89 to 101, have been trimmed to the bone and aimed at the fine arts or journalism book market. For an expanded review list look in **Photographers' Market Place.**

Do send flyers to teacher or college professors in photography. Say review copies are available on request. This way people who get your book, want it.

A Conference and Workshop Planner's Manual

The best conferences are on new subjects by new people. The worst conferences are by new people who don't know what they're doing. This straightforward text – it's basically a well-experienced list – can make the difference. —SB

A Conference and Workshop Planner's Manual
Lois B. Hart &
J. Gordon Schleicher
1979

$15.95 postpaid from:

AMACOM
P.O. Box 319
Saranac Lake, NY 12983
or Whole Earth Household Store

Cheap, great photos and films at Library of Congress

For a minimum fee, and for private use, the Library of Congress will make copies of any of the individual prints which are cataloged there. The Library is a tremendous resource. People who pay $1,000 and up for "original" photographs can sometimes find the same images available at the Library for $10 per gallery-quality print, often made in fact from the original negative. Accordingly, anyone buying photographs would be wise to check the Library's resources first, and then check to see if the "original" being offered by any gallery didn't indeed originate at the Library. Historical societies, museums, universities and state libraries also usually offer quality photographic prints for sale, on request, at a minimum price.

—Elihu Blotnick
Berkeley, California

Write:
Library of Congress
Photo Duplications Service
Washington, D.C. 20540

Note: The Library does not publish a catalog of their prints; you have to know what photograph you are looking for before you write. Also, a small number of their eight million photographs can not be copied, for copyright reasons or because the original donors restricted their circulation.

The Library of Congress also keeps prints of every film ever copyrighted, including those which can't be publicly released for one legal reason or another. (One example is "Rope," a 1948 Hitchcock movie filmed entirely in one shot.) If you want to see a specific film and are willing to travel to Washington, D.C. to do it, you can write the Library of Congress Motion Picture, Broadcasting and Recorded Sound Division, Washington, D.C. 20540, for an appointment. Scholarly inquiries are particularly encouraged. They won't project the film; you run it through a motorized desk-top film editing machine in their back rooms. Similar services exist for broadcast and sound recordings. —Art Kleiner

MY BRILLIANT CAREER

GOING IN STYLE

HEARTLAND

JUST TELL ME WHAT YOU WANT

ELECTRIC HORSEMAN

QUADROPHENIA

GOOD MOVIES

BY
SHEILA BENSON

The hit of the New York Film Festival and the discovery at Cannes was **MY BRILLIANT CAREER**, another rich Australian import. Made (principally by women, except for the cinematographer and editor) from an obscure novel by a 16-year old girl published in 1901, it is the beguiling account of a maverick from the outback (smashingly played by Judy Davis) with no idea of her own singular beauty but a stubborn notion that she is meant for bigger things than the life of an outback homesteader's wife.

Sybylla might be Lillian Hellman's Julia, decades earlier and a continent away. As played by Davis she has the same sort of challenging intelligence, a mix of defiance, wit and wickedness. Her courtship by and of the county's richest catch, played with handsome, blunt assurance by Sam Neill, is a heady Victorian affair; her decision on what to do with him, rendered some years later, is a brave and necessarily lonely one. But it's the core of the film's intent. The film, a first feature work by richly talented Gillian Armstrong, is dense, sumptuous, and solid in character detail and emotional truth.

★

GOING IN STYLE is not, as its ads would lead you to expect, a Gray Panther caper film about three lovable geezers with hair in their ears who pull off a big one. It's a minor-key elegy on the boredom and invisibility of old people in this country, written and directed by Martin Brest in a fine debut. Though it has bursts of humor, like the nonchalance of Art Carney's body English at a Las Vegas craps table, its text might have come from the last line of an Ogden Nash poem: "But the old men know when an old man dies." The film's other two remarkable old men are Lee Strasberg, in a performance of great subtlety, and George Burns, risking everything to act, not merely be lovable, and succeeding brilliantly. His finest moment, as he goes through a cardboard box in which all the memen-toes of one life are contained, is heartbreak enough for several films.

★

You may have to search to find **HEARTLAND**, which was only slowly gathering distribution when I saw it at an AFI showing of independent films in Los Angeles, but the trip will be worth it. In some ways **Heartland** is a companion piece to **Northern Lights**: it is also a low-key, regional film of enormous veracity. (**Heartland**, however, is in color.) Based on Elinore Pruitt Stewart's letters, published in two books – **Letters of a Woman Homesteader** and **Letters on an Elk Hunt** – about life in Wyoming at the turn of the century, **Heartland** may be one of the first true Westerns. It is illuminated by the performances of Conchata Ferrell, as the sturdy widow who comes from Denver with her wide-eyed daughter at her side, prepared to housekeep and possibly homestead, and Amish-bearded Rip Torn as the taciturn Scottish rancher who hires her. The joy in **Heartland** is not exuberant but it is profound; nothing in the film is big except the bleak, unpromising Montana Hills (at the base of the Snowy Mountains) which stand in for the original Wyoming countryside. Richard Pearce has directed his drama of struggle at a most elemental level with absolute sureness, and he has made a haunting, deeply affecting film.

★

Are there captains of industry like Alan King, who can pick out his mistress's wardrobe (from her Bulgari jewelry to her nail polish) at the same time he ruins international banks, acquires movie studios, and underwrites another protege's teeth-capping? Probably – there are stories about Charles Revson that don't sound that far from the outrageous character created by Jay Presson Allen in **JUST TELL ME WHAT YOU WANT.** It is portraiture in brushes wide enough to whitewash a stadium, but the pure vulgar energy of the movie is infectious, and by the time Ali McGraw takes off after

ALL THAT JAZZ

ANGI VERA

BEING THERE

King, beating the bejesus out of him with her purse all over Bergdorf-Goodman's, the juice is really flowing. It's a breakthrough for McGraw, the first loose, appealing acting she has ever done, and we can be indebted to Sidney Lumet for the sight of Myrna Loy again, tart perfection as King's super executive secretary. Every single performance, including Keenan Wynn, Dina Merrill, Tony Roberts, Peter Weller (McGraw's lover), particularly Sara Truslow as King's newest recruit, and Judy Kaye as his daughter Baby, is right on the money, but the strength of this one is its outrageous script.

★

ALL THAT JAZZ, which balances somewhere between sour self-hatred and flagrant self-indulgence, still contains sections of dazzling dancing (and Jean Arthur-voiced dancer Ann Reinking) the like of which the screen has hardly seen before. It slips knowingly behind the scenes of the Broadway musical world (leaving vitriol-etched portraits of director Bob Fosse's earlier collaborators) to follow Roy Scheider, a Fosse double, on a deadly downward spiral of overwork/exhaustion/heart arrest. It's relentlessly overblown, its "truths" are pedestrian, to be kind, its symbolism comes straight from Fellini, and we never quite understand why Scheider is so damn lovable, but it is an intense, unsparing, electric film at its best moments, and Scheider, chain-smoking, stabbing his eyes with Murine, is a dynamo. It has one thing more – the truest picture of a dancer's sweaty world since **Turning Point**. Fosse loves his "boys and girls," their devotion, their discipline, their smarts (and dumbs, sometimes), and his camera lingers on them warmly. His homage, the erotic rehearsal dance, is the sexiest thing on the screen since the striptease he created for Valerie Perrine in **Lenny**.

ELECTRIC HORSEMAN is old news by now (the logistics of three-month deadlines are interesting) but still good news. First of all, the picture has great assurance; there's nothing like turning a work over to pros – old ones like Redford, Fonda, Valerie Perrine, new ones like Willie Nelson. We know what will happen when girl TV reporter tracks down runaway cowboy and the million dollar stud horse he's kidnapped, under a Utah moon – it's the stuff of Thirties comedy-romances. And like those enduring trifles, this works, in a delightful fashion. The dialog is taut and funny (Nelson gets the picture's best line and does it proud*), and under Sidney Pollock's direction what could have been stock supporting roles (the cardigan-sweatered Las Vegas director, the conglomerate mogul) have an interesting humanity rarely found in comedy pictures.

***"I'm gonna find me one of those little keno girls that can suck the chrome off a trailer hitch."**

★

Pal Gabor's **ANGI VERA** (hard "g," the heroine's name, European style, like *Lacombe Lucien*) is astonishing for its indictment of Communist manipulation and memorable for its ethereal star, Veronika Papp, who looks like a ballet dancer of the Thirties. She plays, with delicate intensity, an outspoken hospital worker picked by the Party to go on to a special leadership school, who ends up corrupted by exactly the fervor which gained her approval in the first place. A somber and chilling film, the wonder is that it was made and allowed out of Hungary's state-controlled film industry. Possibly high-level thinking was that its criticism was aimed at the Stalinist period in which it is set, a curiously short-sighted mistake for which we are all the richer.

Is **BEING THERE** a one-joke movie? Yep, and truth to tell, the joke wears a little thin towards the end of 2½ hours, but its tone is perfectly held and it houses a flawless performance by Peter Sellers and a touching one by Melvyn Douglas. Jerzy Kosinski's adaptation of his own novel is a sly parable about a TV-saturated simpleton named Chance who, by pure guileless blandness, creates an impression of enigmatic sagacity, and by the combination of impeccable tailoring and the gift of giving people just what they want to hear, rises to awesome heights. Hal Ashby's production feels more like a foreign film than an American one, and between the faultless production designs of Michael Haller and Caleb Deschanel's dark-hued sumptuous photography, the film's portrait of immense American wealth and power is the best since **Citizen Kane**, and a spot more fun.

★

Is **QUADROPHENIA** for Who fans alone? Not if I'm any example: I run to Randy Newman/Blondie/Willie Nelson and Richard Strauss, but the film sent me off for the album, to recapture the soaring closing scene. The film is an unsettling account of Mod-Rocker clashes in the '60s, with distinct parallels to punk action today; it's theme of teenage frustration would apply any time. Director Franco Roddam's staging of the ugly Brighton Beach clash between natty Mods and nasty Rockers is the film's emotional high point, but the sustained performance he has gotten from Phil Daniels, who plays Jimmy to sneering perfection, is amazing, and the rest of the cast (including the rock band Police's bass player, Sting), few of whom had acted before, are marvelous. Have patience with the thick accents; just remember **The Harder They Come** was almost impenetrable the first few times, too. ■

Teaching as a Conserving Activity

The **Wall Street Journal** *gloated over this book, hailing a reversal of Mr. Postman's previous work (***Teaching as a Subversive Activity** *— 1969) as gleefully as the Church over Galileo's recantation. I'm not sure WSJ appreciated the fact that Postman's "conserving activity" is ultimately as subversive as the readings of Dickens and Proust in Bradbury's* **Fahrenheit 451**, *and for the same reason: both literature and formal education are important mechanisms for "subverting the prevailing biases of the culture."*

There is little doubt that the prevailing bias of our culture is the media, in particular, television, and that its influence over the minds and behavior of our children far exceeds that of school, church, family or any other learning experience. The significant distinction between television and school learning lies in their different — and perhaps antagonistic — modes of codifying information. Postman defines television as an analogic form of information, and language (be it words or numbers) as a digital form, each requiring and generating substantially different intellectual and perceptual activities. He does not propose to eliminate television. He emphasizes the need for an education to provide ballast against it and explores the profound consequences for civilization of a culture dominated by analogic perception and expression.

> Analogic forms of information are systems of codification which have a real and intrinsic relationship to what they signify. A photograph is a good example. A picture of a man calls to mind the reality of that man because the picture itself is analogous in form to the man himself. . . . Analogic forms, in other words, have direct correspondences to the structure of nature itself. Such representations mimic, replicate, and specify, through their form, recognizable aspects of reality. On the other hand, digital forms of information are entirely abstract, and have no natural correspondences to nature. The word *man*, whether spoken or written, has no intrinsic relationship to that which it stands for. . . . You cannot know what *man* refers to by your knowledge of nature alone. You must know the semantic code. And not only that. You must also know the structure by which words are connected to other words, for "a man kills a bear" does not mean the same thing as "a bear kills a man."
>
> Analogic forms, such as pictures, are not ideas; nor are they paraphrasable. A picture must be experienced to be experienced. . . . Words are of a different order of abstraction, requiring an entirely different mode of intellectual activity. . . . This is another way of saying that the TV curriculum does its work in analogic symbols which appeal directly to emotional and largely unreflective response, while the school curriculum, relying heavily on digital symbolism, requires sophisticated cognitive processing.

The most essential function of our schools is to provide as effective a counter-bias to the prevailing, powerful influence of television as possible. The organizing and controlling element of civilization, as well as of individual experience, is language, "the instrument of civilized discourse." To be able to read fluently is to have access to the experience, ideas, perceptions and emotions of many generations of diverse cultures and times; to put words together coherently is to bring some semblance of order to one's own experience, ideas, perceptions and emotions and thereby exert control over them. There is ample evidence that fewer and fewer of our children are finishing school with even minimal skill — to say nothing of interest — in speech, reading, or writing, on any subject whatever. Postman describes the results in alarming detail and concludes that "articulate language is our chief weapon against mental disturbance."

Of the two paragraphs below, the first was written in 1868 by E. Nesbit, at the age of ten; the second is a recent description by a ten-year-old of a favorite television character. Knowing nothing of the two young writers but what their syntax and language reveal, it is not difficult to imagine which of the two will grow into adulthood with some command over her environment and experience, and her own responses to them:

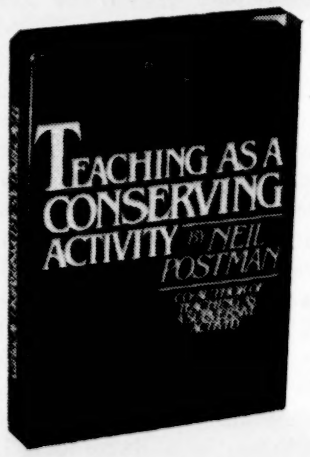
> ". . . On the tenth Julie and I intend going to La Haye and there remaining till Monday, during which period I hope you will arrive to your poor little pet. The Mere Marie Madeline gives her full consent to this arrangement. She tells me to tell you that she thinks that I am a 'Bon petit Diable.' You must ask sister what that means. I think she will tell you that it means a 'Good little Devil.' This appellation does not really signify a Devil such as tempts the world but it is a pet name for the 'brise fer' in 'La Belle France.' Sister would perhaps kindly explain the words you do not understand."
>
> "There's this guy I cant remember his name and he was exposed to radioactive and he was this scientist you know, and it made him into this monster but its really a different guy its Mr. America and it only happens when people make him mad and his clothes all rip. He can move tanks and things and he doesnt remember anything that happens afterward and I don't know how his clothes all fit again without rips." *[Spelling corrected by me on this one.]*

In 1963 Jules Henry pointed out that more than 50% of the educated "class" in this country were engaged in one way or another with what he called "the culture of death" — the defense industry and its many direct or indirect contributors. "The forces of death," he wrote, "are confident and organized while the forces of life — the people who long for peace — are, for the most part, scattered, inarticulate, and wooly-minded, overwhelmed by their own importance."

It is time — if there is time — for the forces of life to become confident and organized. That is, articulate. Neil Postman offers hope that our schools, if they turn off the video long enough to read his book, can accomplish this. Pray God they will. —Carol Van Strum

Teaching as a Conserving Activity
Neil Postman
1979; 244 pp.
$9.95 postpaid from:

Delacorte Press
1 Dag Hammarskjold Plaza
245 E. 47th Street
New York, NY 10017
or Whole Earth
Household Store



The effects to which I am alluding can be observed not simply in the fragmented, impatient speech of the young or their illogical, unsyntactical writing but in the rapid emergence of an all-instant society: instant therapy, instant religion, instant food, instant friends, even instant reading. Instancy is one of the main teachings of our present information environment. Constancy is one of the main teachings of civilization. But constancy presupposes the relevance of historical precedence, of continuity, and above all, of complexity and the richness of ambiguity. A person trained to read a page in three seconds is being

Reflections on Behaviorism and Society

*Of utmost and urgent importance to those who wish to ameliorate economy, community, society or biosphere. Most unfortunate that it is squirreled away in a hard cover short discount text edition, as is the case with so many of this author's many important works (***Verbal Behavior, Contingencies of Reinforcement***). Might be a capitalist plot. Someone would do the world a favor by getting these three books into mass market paperbacks.*

The author's preface is the best review.

—Stevens Van Strum

Reflections on Behaviorism and Society
B.F. Skinner
1978; 209 pp.

$15.95 postpaid from:

Prentice-Hall, Inc.
Box 500
Englewood Cliffs, NJ 07632
or Whole Earth
Household Store

This is not a book to be read straight through. Most of the papers were occasional, and the occasions various. For those who prefer an overview, here is a brief synopsis:

1. Behavior modification is just the technology we need to promote the face-to-face control of people, by people, and for people and thus to reduce the scope of the centralized institutions of government and economics.

2. We are beginning to be seriously concerned about the future. How can people be induced to behave in ways that take the future into account? There are relevant behavioral processes, but only the most careful planning will enable us to use them to solve our problems.

•

12. Teachers who leave education to the innate curiosity of the student in a natural "learning environment" abandon their role as transmitters of the culture. New instructional practices can restore that essential function. Higher education is especially resistant to a behavioral technology, but changes are being made — as in the personalized system of instruction of F.S. Keller.

•

There was an excellent example of the probabilistic control exerted by a verbal stimulus at a recent symposium at Yale University organized to discuss **Beyond Freedom and Dignity**. On the second evening, several students brought in a large banner reading "Remember the Air War," which they hung from the balcony. It could not be seen by many in the audience, but it confronted the five panelists on the platform throughout the evening. It had a predictable effect: Everyone of us mentioned the war in Vietnam at some point in his discussion and the last speaker, Sir Denis Brogan, put aside his manuscript and spoke only of the war.

That was good behavioral engineering. We should learn to live with it.

Living Together Alone

There are two good reasons and one bad one to read this clear account of life in nine quite various American monasteries (Trappist, Buddhist, Charismatic, etc.). Read it if you're thinking of becoming a monk for a while or ever. Read it to feel better about America's long-term prospects. Don't read it as an academic study please.

—SB

Living Together Alone
(The New American Monasticism)
Charles A. Fracchia
1979; 186 pp.

$5.95 postpaid from:

Harper & Row Genl. Books
Keystone Industrial Park
Scranton, PA 18512
or Whole Earth
Household Store

A Benedictine monk at Christ in the Desert Monastery in New Mexico plants flowers near the guest house.

"There is nothing wrong with arches and hoods and chant," Brother David answers. "Personally, these things are very much to my taste. But there is one decisive feature that makes an environment monastic: mindfulness. In fact, that's what a monastery is anywhere in the world, a place designed to foster mindfulness."

"Mindfulness in all its dimensions," Father John adds, "from the way we treat our garden tools, to responsible awareness of global issues, the arms race, exploitation, hunger." Gregory tells of Good Shepherd House of Hospitality in nearby Norwalk, an outreach of the Grange, of which he is in charge. Forty and more hungry people come there every day for a warm meal and for assurance that someone is mindful of them and cares. "Of course," he adds, "what we receive is so much more than what we can give. Often I'm overwhelmed by gratefulness."

Gratefulness, my three hosts agree, is inseparable from mindfulness. The problem, as they see it, is that our affluent society conditions us to take more and more things for granted. But what we take for granted does not make us happy; it means nothing to us. Thus, as gratefulness deteriorates, happiness is lost, and the meaning of life is lost. They see their monastic foundation as a school for grateful living. More and more people experience today a need to spend time in such a place.

taught contempt for complexity and ambiguity. A person trained to restructure his or her life in a weekend of therapy is being taught not only contempt for complexity and ambiguity but for the meaning of one's own past. And a person who abandons a five-thousand- or two-thousand-year-old religious tradition to follow a fourteen-year-old messenger from God has somehow learned to value novelty more than continuity.

Where does the seeming plausibility of instancy as a way of life come from? It is at least a reasonable hypothesis that it emerges from the "world view" advanced by our present information environment.

•

Our youth have no head for historical facts, and probably very little interest in history; which makes history, as I have stressed, particularly relevant to their education.

•

The classroom *is* a nineteenth-century invention, and we ought to prize what it has to offer. It is, in fact, one of the few social organizations left to us in which sequence, community experience, social order, hierarchy, continuity, and deferred pleasure are important.

Typical Victim of Sensory Overload, I must...

"BOP WE MUST!"

IS THIS FOR PRINT?

IS IT FOR THE PEOPLE??

IT'S EITHER THAT OR TEAR MY HAIR OUT!

I CAN'T KEEP IT "LINEAR" ANYMORE, I'M SORRY... GOD KNOWS I TRIED...
—R. CRUMB '80

THIS COMIC STRIP IS MEANT FOR DISCERNING READER WITH REF SOPHISTI ED TASTES ONLY!

...OR MAYBE BOTH!

...AN' I'M NOT EVEN ON DRUGS!

RIP

A PITY A PITY... SUCH A BRILLIANT MIND...

SNIFF

HE IS DEFINITELY NOT THE HOOCHY KOOCHY MAN!

MY HEART BLEEDS FOR 'UM...

ALL GONE

HAIR TODAY, GONE TOMORROW

"PROLES"

GO WITH IT!!

AW PHOOEY!

YER ONLY YOOMIN AFTER ALL!

WHAT DO I WANT? WHAT DOES ANYBODY WANT, REALLY??

HE'S NOT GONNA GET ANYWHERE WITH HER!!

...COMFORTABLE SHOES AND A WARM PUSSY, RIGHT???

RIGHT???

DON'T BE CHILDISH...

SPLAT

IT ALL DEPENDS ON WHO YA ASK, CHUMP!

OY

IT'S A SHOT IN THE DARK, MY FRIEND

I NO KNOW WHO I BE...

SHE'S RIGHT!

TO YOU, MY FRIEND, I WOULD SAY THIS: IF YOU WOULD GET YOURSELF TOGETHER—

NO SHIT, SHERLOCK!

HOLY CHRIST ON A CRUTCH!

LIMP DISH RAG BOY

PUDDLE FOR SALE STILOUT REALTY

IS THIS STOOPID? I CAN'T TELL.....

THAT IS CORRECT... MY NAME IS "NO-SHIT SHERLOCK" AND I AM POINTING THIS FINGER OF ADULT RESPONSIBILITY STRAIGHT AT YOU! THE BUCK MUST STOP AT YOUR.....

IYIYI!

LEMME OUTA HERE!

* ... A SHIRT FOR OUR GAL ANNE HERBERT!

I GOTTA BE ME STREET

CAN'T USE IT...

I'M JUST A VAGABOND LOVER...

HONK HONK

HOT SPOT

EGG

BZT

SCREECH!

OOZE INN

BAR

VROOMM

HONK

BEEP!

.... IS THIS TOO MURKY? HYSTERICAL??

BUT SUDDENLY...

OMIGOD! WHAT IS THIS FUGGING NAMELESS TERROR?

IS IT TH' BIG CITY BLOOZ??

KRIPES!

SHIT!

VAGABOND LOVER INDEED! SUCH SLUSH!

I KNOW WHUT IT IZ! IT'S TH' UNCERTAINTY... BECAUSE... GUESS WHAT?! I DON'T KNOW WHAT I'M DOIN'!!

SPLAP

BLAH HAH HAH HAH!!

IN A MATTER OF SECONDS NAMELESS TERROR TURNS TO NAMELESS X-T-C !!

WHAT'S WITH THAT SLAP-HAPPY CLOWN??

BEATS ME

WHOOP WHOOP WHOOP WHOOP

WHEW! OH, AHA... AHA... HO BOY! IT'S A BIG WHACKY WONDERFUL WORLD... HHEH HEH...

MY GOSH! HEH..

EL ROPA

U.S. MAIL — SOCIALISM IN AMERICA — SO WHAT'S THE BIG DEAL??

KLIP KLOP KLIP KLOP

WHY TAKE IT SERIOUS... IT'S TOO MYSTERIOUS...

HEH HEH HA HO GIGGLE

SIZE 14

US MAIL

UH OH... WOULDN'T YOU KNOW...

DOUBTS DOUBTS DOUBTS DOUBTS DOUBTS DOUBTS ..... and dubiosities...

WHAM!?

WHOOAAH!

YEAH, BUT WHAT ABOUT CONTINUITY? WHAT ABOUT STORY? WHAT ABOUT CHARACTER DEVELOPMENT?

HE'S RIGHT, BUT HOW CAN THERE BE CHARACTER DEVELOPMENT WHEN I DONT EVEN KNOW WHO I AM!!

OOH THAT HURT!

IS THIS ART??

KISS ME YEW FOOWL!
EEEEEK
ROYAL ARMS APTS.
IS THIS TOO TOO?
PWOLP
@☆!!!#!
GOOD LORD
SUCH PEOPLE!
IT ALWAYS GETS VISCERAL!
POP!
GEE, I'M REALLY TERRIBLY SORRY ABOUT THIS WHOLE THING! REALLY, I AM...IT WAS A FREAK ACCIDENT... I FEEL JUST AWFUL ABOUT IT...WHAT'S YOUR NAME?
MAN, IT WUZ WEIRD!! RILLY WEIRD!! ... I'M VICKY... WHAT'S YOUR NAME?
MY NAME IS...UH... "TOO LOOSE LA DREK" ...UH, LISTEN, VICKY, I.. UH... FEEL I OWE YOU AN EXPLANATION ...
FATUOUS BASTARD!
SAY, WOULD YOU LIKE TO GO OVER TO THAT COFFEE SHOP? I'LL LIKE TO BUY YOU LUNCH TO MAKE UP FOR THE TERRIBLE INCONVENIENCE I'VE CAUSED YOU.... WHATAYA SAY?
OKAY...SURE, WHY NOT? IT'S NOT EVERYDAY A GUY FALLS OUTA THE SKY AN' GETS STUCK ON YER FACE... TEE HEE GIGGLE
TA HA HA! HEY THAT'S GOOD! CHUCKLE...
... AND SIGNING OFF, THIS IS "NO-SHIT SHERLOCK" SAYING, DON'T FORGET, FOLKS, SOUTH AMERICAN PEASANTS ARE BEING TORTURED THIS VERY MINUTE FOR YOUR CONVENIENCE!!
OY
PLOP
ALWAYS LEAVE 'EM FEELING UNEASY!
END

Mime

A superior introduction to the art because it's absolutely graphically clear and teaches you tricks quickly enough that you begin with competence and confidence the craft of embodiment.

—SB

Mime
(A Playbook of Silent Fantasy)
Kay Hamblin
1978; 192 pp.

$6.95 postpaid from:

Doubleday & Co., Inc.
501 Franklin Ave.
Garden City, L.I., NY 11530
or Whole Earth Household Store

Outline your whiteface with a black line. This line should follow and enhance the natural shape of your face. Your 'mask of silence' is now complete.

The Solar Cookery Book

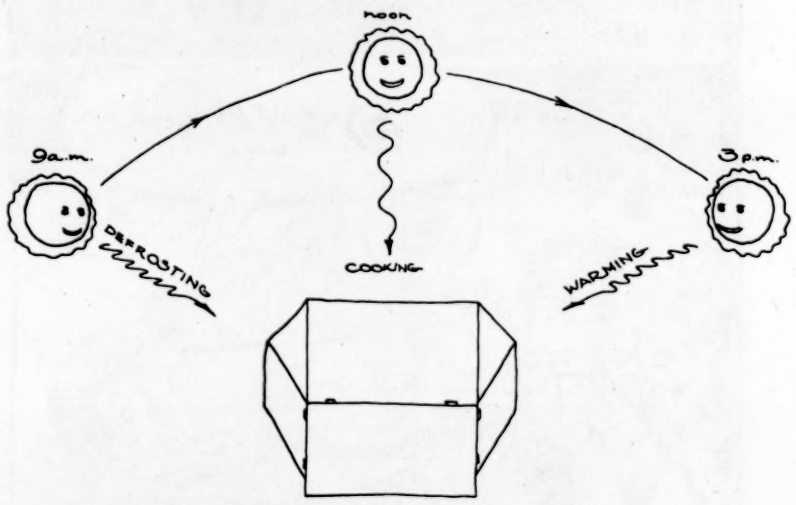
It's about time! We have here store-bought ovens, plans for making your own, and a set of proven recipes, all nicely explained by old solar pros. This book is a good one for getting the kiddies into the act, as the plans are very clear step-by-step and the solar food is doubtless as yummy as it is instructive. I've tried out some of the offerings, too. They worked.

—J. Baldwin

The Solar Cookery Book
(Everything Under the Sun)
Beth and Dan Halacy
1978; 107 pp.

$6.95 postpaid from:

Peace Press
3828 Willat Ave.
Culver City, CA 90230
or Whole Earth Household Store



Using "automatic timing" with the solar oven

A-Z Solar Products
P.O. Box 22688
Robbinsdale Branch
Minneapolis, MN 55422
(612) 537-3616

Cookers, cigarette lighters, solar cells, reflective material, watches, electronic project kits, books, sundials, solar slide sets.

Edmund Scientific Co.
Barrington, NJ 08007
(609) 547-3488

Cookers, cigarette lighters, solar cells, aluminized mylar sheets, sundials, books, house plans.

Kerr Enterprises, Inc.
309 E. 14th Street
Tempe, AZ 85291

Plans for "Solar Box Cooker."

Sedona Solar Shop
Box 1737
Camp Verde, AZ 86322
(602) 567-9551

Solar chef cookers.

Solar Cookers
Dan Halacy
5804 West Vista Ave.
Glendale, AZ 85301

Solar oven kits, solar hot plate kits.

Solar Pro's Inc.
2224 West Desert Cove
Suite 201
Phoenix, AZ 85029
(602) 993-1598

Cookers.

Solar Usage Now, Inc.
Box 306
Bascom, OH 44809
(419) 937-2226

Cookers, solar cells, reflective material, watches, books, sundials.

Sundials & More
New Ipswich, NH 03071
(603) 878-1000

Solar cells, sundials.

Sunway
611 Evergreen Street
Burbank, CA 91505
(213) 846-0592

Cookers.

Get Your Hands On Energy

The highly experienced New Western Energy Show brings us this proven teaching guide. It's jammed full of ideas for giving kids (and adults too, for that matter) a feeling for energy matters. The experiments are well illustrated, and some are augmented with read-aloud stories. This is all done with a certain love that is often missing from slicker teacher's guides. It's the one I'd use.

—J. Baldwin

Get Your Hands On Energy
(A Teaching Guide About Renwable Energy and Conservation)
Shaun Taylor, Maureen Shaughnessy, Robin Leenhouts
1979; 100 pp.

$5.25 postpaid from:

New Western Energy Show
226 Power Block
Helena, MT 59601

Nature at Work

The British have always had a lovely way with Nature: gentler, more at ease and a more persistent curiosity than the American approach. Here is a beautifully-illustrated paperback that doesn't flash "we know it all." It slowly draws the reader (high school and up) into the flow of energy created by the sun through the intricate webbing of community ecosystems. A fine reference for all teachers — elementary school on up.

—Peter Warshall

Nature at Work
(Introducing Ecology)
British Museum
(Natural History)
1978; 84 pp.

$4.95 postpaid from:

Cambridge Univ. Press
510 North Ave.
New Rochelle, NY 10801

or Whole Earth
Household Store

. . . we can find out how the plants and animals interact with each other and with their non-living surroundings to form a natural system — an ecosystem.

Naturally Powered Old Time Toys

Believe it or not, there was once a time when moving toys were not battery users! I remember using some of the toys shown in this happy collection. Some were endlessly fascinating and some were frankly more interesting to the adults who brought them. All were great rainy afternoon whiler-awayers. This book categorizes the various devices by power source; rubber bands, gravity, steam, etc. and . . . (heh heh) Mystery. (The only one missing is the fly-powered airplanes we used to make. I guess the S.P.C.A. would frown on such things these days.) Anyway, it's well-illustrated with very clear directions and even some full-size patterns. I've added it to my own bookshelf.

—J. Baldwin

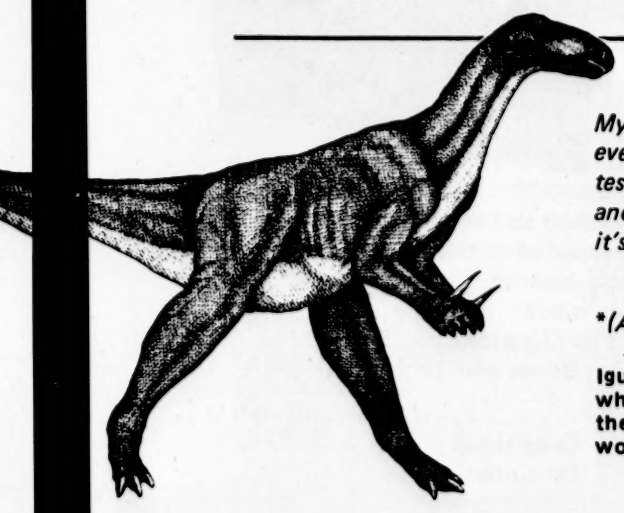
Naturally Powered Old Time Toys
(How to Make Sun Yachts, Sail Cars, a Monkey on a String, & Other Moving Toys)
Marjorie Henderson & Elizabeth Wilkinson
1978; 128 pp.

$6.95 postpaid from:

J.B. Lippincott Co.
East Washington Square
Philadelphia, PA 19105

or Whole Earth
Household Store

Big goggly movable eyes will help make him funny. You can find packaged eyeballs of various sizes in many craft stores, but *be warned* — once you start glueing them onto things, you will find it hard to stop.



Archosauria

My love of evolution started with dinosaurs. Just about every boy I know loves dinosaurs. This is the new testament of dinosaur life. Beautifully illustrated. Clearly and light-heartedly truthful. As with all books like this, it's just as interesting to adults as youngsters.*

—Peter Warshall

**(All the girls I knew liked dinosaurs, too. —Evelyn)*

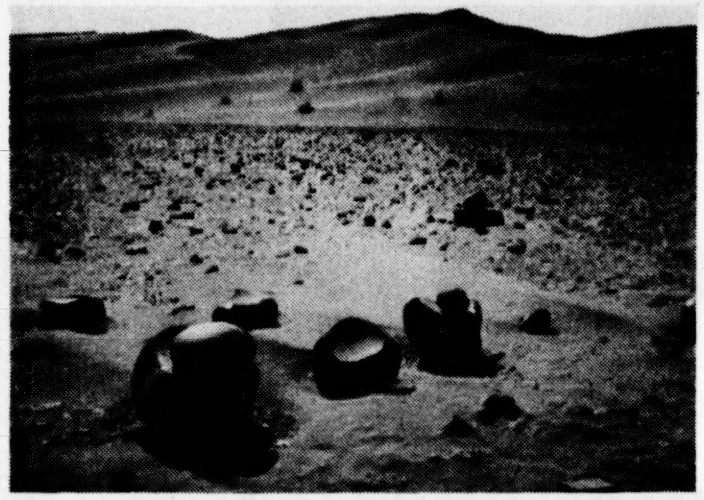
Iguanodon possessed defensive spines on its thumbs, with which it must have struck at the eyes of carnivores — there was no other spot at which predatory dinosaurs would be vulnerable to these little weapons.

Archosauria
(A New Look at the Old Dinosaur)
John C. McLoughlin
1979; 117 pp.

$10.95 postpaid from:

The Viking Press
299 Murray Hill Parkway
East Rutherford, NJ 07073

or Whole Earth
Household Store



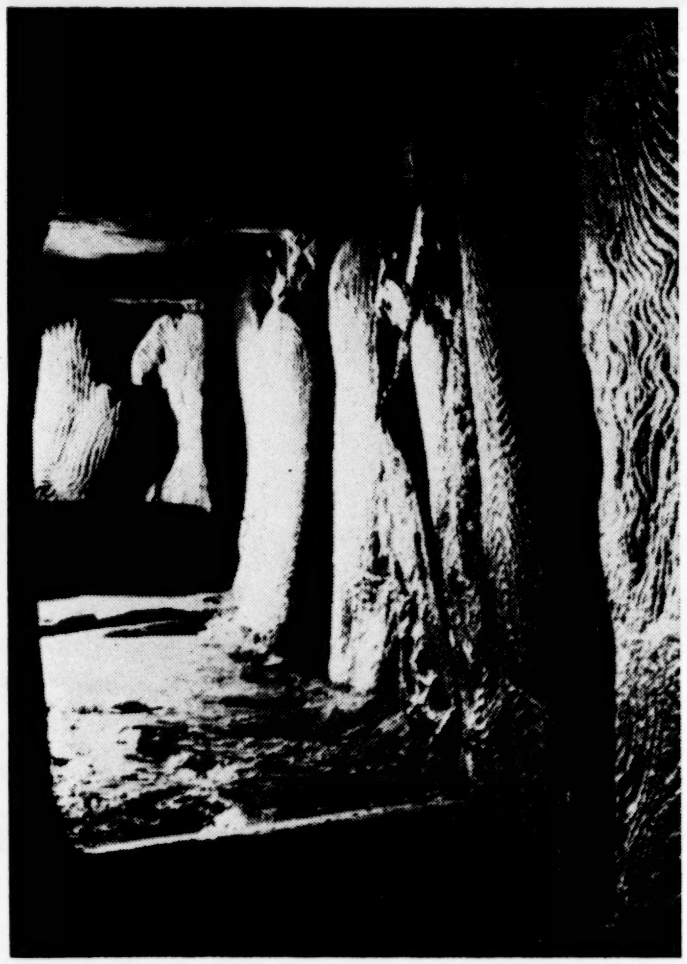
The surface of the Sahara is strewn in places with milling and grinding stones from the New Stone Age. Their presence gave rise to a belief that the inhabitants had practised agriculture on a large scale. Now, however, biologists and scientists who study fossil pollens believe that the stones were used solely to grind wild, grain-like grasses.

The World's Last Mysteries

A peerless browse, this collection of fascinating color photos and sufficiently brief explanations of the still half-understood goings-on around Atlantis, the discovery of the New World, El Dorado, sundry megaliths, lost empires of South America, Africa, and the Mideast, Easter Island, Zimbabwe, Angkor Wat, etc. give <u>any</u> reader itchy feet and itchy mind. —SB

The World's Last Mysteries
Reader's Digest
1976, 1978; 320 pp.
$16.95 postpaid from:

W. W. Norton & Co., Inc.
500 Fifth Ave.
New York, NY 10036
or Whole Earth
Household Store



Extraordinary patterns of scrolls, spirals and zigzags cover the surface of these dressed stones forming the passageway to the funeral chamber of a burial mound on the island of Gavrinis off the coast of Brittany. Generations of archaeologists have been unable to decipher these designs.

Buddha, the Christian saint

An interesting fact, for what it's worth: *Buddha was once a Christian saint.*

This comes from Idries Shah (p. 24 of **The Way of The Sufi**) who wrote: " 'St. Jehosaphat' has been shown to be Buddha . . ." Shah neglected to provide a footnote, so I turned to the library's Butler's **Lives of the Saints**.

There I learned that Christian missionaries had heard the story of the Buddha in India, had liked what they heard and had made a few revisions: Siddhartha became Josaphat (I don't know where Shah found his spelling), Buddha's hermit-teacher was renamed Barlaam, and Buddha's choice became kingship/Christianity instead of kingship/asceticism.

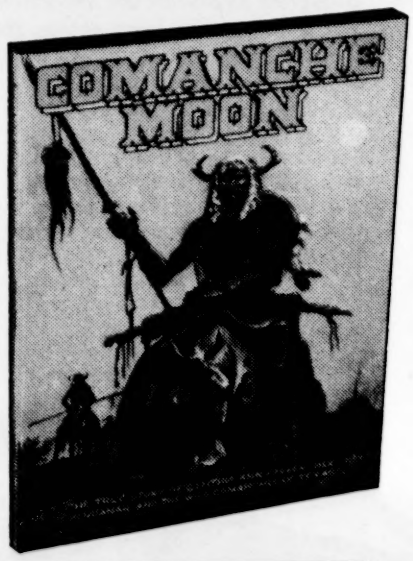
The tale travelled west. When John the Monk (falsely known through attribution as St. John Damascene, but actually St. Euthymius the Hagiorite of Mar Saba) translated the work into Latin at Constantinople, he added the "Apology" of the Athenian Christian philosopher Aristides thus preserving this work for posterity. Ultimately a certain Cardinal Baronius added Josaphat (also known in versions as Joasaph) to the Roman Martyrology and gave him the feast day of November 27. Butler's **Lives** — at least the edition I found this in — was published prior to the great purge in which St. Christopher, among others, lost his job. I'm assuming that, in the ecclesiastical house cleaning, St. Josaphat also got his walking papers. This was no doubt a source of some embarrassment to those churches in Venice, Lisbon and Antwerp which were dedicated to St. Josaphat — the only orthodox Catholic churches I'm aware of that also served as Buddhist temples.

Comanche Moon

A fine cartoon biography of one of <u>my</u> old heroes, the half-Indian half-white Comanche chief Quanah Parker. The rise of high-quality comic book documentaries like this is one of the more encouraging trends in publishing. —SB

Comanche Moon
Jack Jackson
1979; 128 pp.
$7.55 postpaid from:

Rip Off Press, Inc.
Box 14158
San Francisco, CA 94114
or
Last Gasp Eco-Funnies
2180 Bryant Street
San Francisco, CA 94110
or Whole Earth
Household Store



Now, I'm not aware of Buddhist shrines, temples, or whatever that have been dedicated to the Christ. It seems that the tale would be nicely balanced if it could be proven that Christ had been made a boddhisatva. (There must have been some cross-fertilization: compare stories in Paul Reps' **Zen Flesh, Zen Bones** and Thomas Merton's **The Wisdom of the Desert**.)

Is this CoEvolution?

Greg Hand
Cincinnati, Ohio

The Man Who Kept Cigars in His Cap

Although conventional distinctions of urban vs. rural life are mostly obsolete nowadays due to improvements in communication and services, "provincial" life continues in its timeless vein through our places of work and home-life. Patterns of growth remain fixed. Stories which handle the common themes of learning and grasping and refining our understanding of the world appear necessarily mundane when put up against the incredible fantasies of television, but we recognize the difference. Life is made of peculiar events — not hilarious as TV would like us to believe — but peculiar. The stuff of stories worth listening to, if they are well told. Jim Heynen, most recently of Idaho and now living in Port Townsend, Washington, can tell a good story. His new book contains forty-odd stories of the old tradition: short, touching renditions of youths finding out how the world works and adults struggling to stay in it. Such tales can arise from urban settings and do so, but these happen to be of a rural nature. Mr. Heynen had the good fortune to be raised in a farming community, where life is richer and includes the amazing feats of animals and the odd behavior of tolerated neighbors (even if The Man Who Sharpened Saws had the unfounded reputation for being a communist, he nevertheless was too good a craftsman for anyone to ignore).

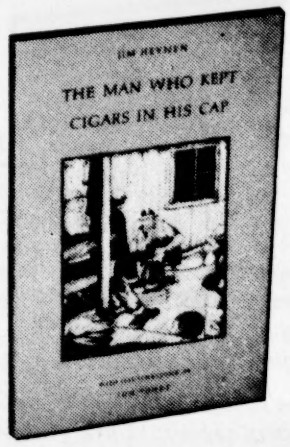
That mention of tradition. There is one here, roughly five hundred centuries old. Neolithic story tellers are forgotten, but Thucydides did well with it, as did Homer. The narrative yarn has a secure place in some old part of our minds. Film has disjointed narration by introducing the new vocabulary of the sensuous image — a not unworthy achievement — but it has done a disservice to itself by becoming boring. Narration is at its best when describing the everyday world and its routines. Heroism and humor find their way in without any forcing; the task of figuring out the world rises to the magic it deserves. Literature becomes people talking to us. "The boys" in **The Man Who Kept Cigars in His Cap** *move through their families and community, bearing witness and generating changes. They watched the men try to save a bloated cow and then came up with their own method. It worked. They spied on the woman who made such perfect little waves on the edges of her pie crusts and found out how she did it. They attempted to deliver justice and found the world to be more complicated than it appeared. Their best efforts could not save a wounded animal.*

The portrayal of the man who walked his stallion around on the breeding circuit evokes equal amounts of dignity and tragedy. Are these stories nostalgic? I suggest no. Based as they are on experiences and responses occuring anywhere at anytime, they resemble legends more than anything. Any good story is but a skillfully reworked legend, adapted to local conditions. And legends don't age.

—Terry Lawhead

The Man Who Kept Cigars in His Cap
Jim Heynen
1979; 61 pp.
$4.50 postpaid from:

Graywolf Press
P.O. Box 142
Port Townsend, WA 98368
or Whole Earth
Household Store



The Big Push

One morning the boys walked into the cow barn to find an awful sight. One of the cows had calved the night before, but during the night her womb had come out and was lying in the gutter behind the cow.

The biggest boy didn't gag or jump back, and he was the first to notice that the strange mass led into the cow. He stayed and watched while the other boys ran for help.

Then the work began. The womb had to be cleaned off with soap and kept clean so that the insides of the cow would not get infected. The hardest part was shoving the womb back in. Pushing the womb back in is like trying to push a calf back in — nothing inside the cow wants things to go in reverse like that.

When the boys understood what they were working with, the womb in the gutter did not bother their stomachs. First, they cleaned the gutter around the womb with pitch forks and then with water. They got down on their knees and started washing the womb, pulling the clean part up on their laps as they worked. When this was finished, they cradled the womb in a white sheet and got ready to help with the big push.

All of this took several hours and word got around the neighborhood. Even the mailman stopped in to see this and was ready to help push. The boys had to stand back, but the men's hands were so big that they couldn't get enough of them around the cow's vagina to tuck the womb in as they pushed.

So the boys got their turn. And they thought of something the men wished they had. One of them went around to the front and fed the cow some oats while the others pushed. Having things coming in from both ends at the same time must have confused the cow's instincts. When she was swallowing the oats, the boys behind pushed. The cow coughed the oats up but the womb was in. After that the cow ate the oats again without coughing it up. The womb stayed in too.

That's the end of the story. But boys have dreams and cows have dreams. Think about that for a while.

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My favorite watershed text for kids (and everyone). The water workbook par excellence. A rip-roaring comic adventure of Capt. Hydro and the water bandit, ways of understanding water conservation, watersheds, water treatment and your water meter. A veritable sluice of intellectual fun and games. *—Peter Warshall*

The Official Captain Hydro Water Conservation Workbook
Bob Johnson &
Ben Akutagawa
1975; 32 pp.

$ .35 postpaid from:

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Utilities District
Attn: Public Information
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Oakland, CA

Three Geese In Flight Books

Three Geese stocks fine fantasy books, records, and prints for those who want to start where **Lord of the Rings** *left off. The emphasis is on authentic Celtic culture, folk-myth and fairy-tale, with some just-plain fantasy. The (unfortunately un-illustrated) catalog lists all their used books individually — many good books in what sound like marvelous editions.* *—Art Kleiner*

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The Gododdin, Kenneth Jackson P.B. Northern "Welsh" battle poetry from about 600 A.D. Earliest Bardic mention of Arthur. In reference to one of the Celtic heroes of the poem. "He glutted black ravens on the rampart of the stronghold though he was no Arthur . . ." Wearing Golden Torques like their ancient Dieties a Cavalry troop of three hundred warriors from different kingdoms rode out and attacked the English. Vastly outnumbered they were almost all killed. Except the Famous Bard Aneirin, who lived to tell this tale. Scholary Translation and Intro. $6.95.

World Tales

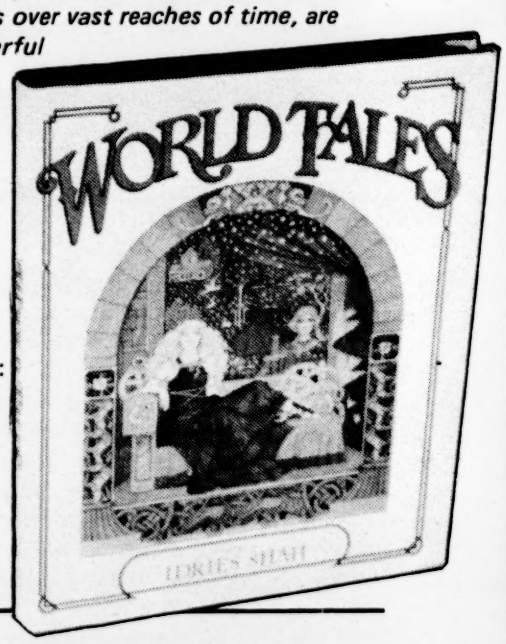
The Enchanted Book

Once upon a time, there was a peasant woman with such kindly neighbors that she lacked for no comfort save one, and that was her regret that she had nothing to offer in return for their many favors.

One night a voice came to the peasant woman in her dream, saying, "Unto you will be given a treasure of inestimable worth that will increase its value insofar as you share it with your neighbors." The woman wondered exceedingly at this. And the next day a brown messenger delivered a book to the peasant woman. Being of humble origin, the woman did not perceive that the volume was bewitched, and could not know the nature of its enchantment. Seeing only that it was lovely to behold, she called her neighbors and opened the volume to display to them the good fortune which had so unexpectedly befallen her. But the nature of the book's enchantment was this; that when she had begun to read the very first page, her heart was filled with such delight and wonder that she could not stop reading, and the hearts of her neighbors were likewise so filled with delight and wonder that they gathered like crows in the corn and caused her to read until her voice crept into a corner of her throat to hide, and then they took it in turns to read among themselves to each other. And always when the last page was turned, there were newcomers in the multitude desiring to hear the pages they had missed, and thus the book fulfilled its enchantment in that from the day of its opening it was never closed again, and the tales from its pages were ever told and told anew by the neighbors and the neighbors' neighbors, and the neighbors' neighbors' neighbors of that realm. And the peasant woman lived her days in joy for the gift of a treasure whose worth increased by sharing it.

Interpretation: the brown messenger was the UPS man, and the book, **World Tales**. *The peasant woman is me. All the rest is true. This is a rare and magical book, beautiful to look at and impossible to put down. Each story is more wondrous than the last, embellished – adorned, really – with extravagant pictures by a variety of artists*

in the tradition of the illustrated book or illuminated manuscript. Idries Shah's tales about each tale, showing where and when each story has unaccountably occurred in widely diverse cultures over vast reaches of time, are as mysterious and wonderful as the tales themselves.
–Carol Van Strum

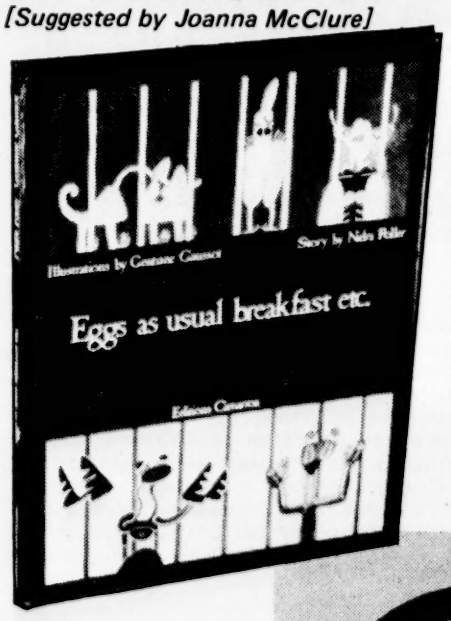


World Tales
(The Extraordinary Coincidence of Stories Told In All Times, In All Places)
Collected by Idries Shah
1979; 259 pp.
$19.95 postpaid from:

Harcourt Brace
Jovanovich, Inc.
747 Third Ave.
New York, NY 10017
or Whole Earth
Household Store

Eggs as usual breakfast etc.

Read this hilarious book (aloud, with audience) and you'll never tell a tightass story to a child again. Go ahead, ride your impatience, start telling a homemade story anyway, and watch it take you into real myth with blood monsters and a personal happy ending. In story-making, looseness is all. This shocking book has it. *–SB*
[Suggested by Joanna McClure]



Eggs as usual breakfast etc.
Gentiane Gaussot, illustrations
Nidra Poller, story
1979; 28 pp.
(also available in the original French)
$10 postpaid from:

Lawrence Hill & Co.
520 Riverside Ave.
Westport, CT 06880

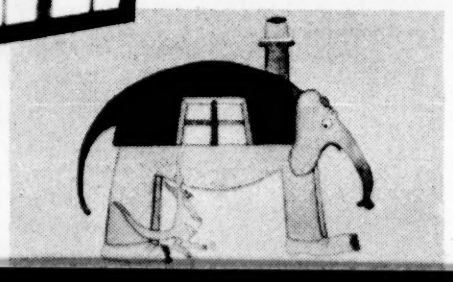
Once upon a time there was a mother whose children liked homemade stories better than anything. Better than homemade ravioli, homemade cake, banana splits or home brew beer or homemade scuppernong wine or rough hewn shirts or rough hewn homemade haircuts.

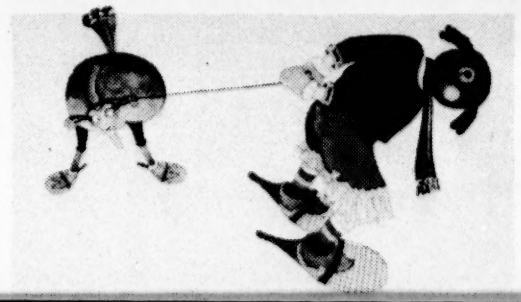
She offered homemade anything else many nights when she was tired or her brain I mean her imagination was empty. No. No to all substitutes. They wanted stories.

•

She went to bed. At eight o'clock. They didn't. She tried so hard to dream.

They plotted. All she could dream was a white wall that went from below ground to above the sky and curved around in a complete and utter circle, allowing not so much as a single corner where a spider could build a web, attract an ant, and start the beginnings of a creepy wispy webby buggy story. Not so much as a corner. Not even a tiny almost invisible crack in the white wall surface where a drop of water could drip down into a small clear globule of a drip of a story. Not so much as a crack. Not even a little rough spot where bits of dust could accumulate and make the foundation for a scattered puffy grey fuzz of a dirty story. Not even a rough spot.





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CoEvolution Quarterly — Spring '80 Financial Report

EXPENSES	Nov.,Dec.,Jan. (Predicted)	Nov.,Dec.,Jan. (Actual)	Feb.,Mar.,Apr. (Predicted)
Salaries and fees			
Office	$ 20,000	$ 22,114.69	$ 18,000
Production	11,500	9,153.13	9,000
Editors	8,000	8,349.23	9,000
Contributors	5,000	7,077.63	7,000
Office rental, materials, etc.	13,000	13,068.03	12,000
Phone	1,000	726.13	1,000
Promotion	20,000	15,304.45	2,500
Printing	36,000 (50,000 copies)	33,036.96 (50,000 copies)	36,000 (50,000 copies)
Subscription process and mail	20,000	17,033.25	14,500
Shipping	1,700	1,433.79	1,500
Business reply	2,000	1,300.00	700
Refunds	200	265.74	300
Total	$138,400	$128,863.03	$111,500
	Unit cost (printing): $ .66 Unit cost (total): $2.58		
INCOME			
Subscriptions, gifts and renewals	$ 95,000	$ 89,779.65	$ 53,000
Retaining & Sustaining	5,000	5,140.00	5,000
Back issue	4,000	4,971.77	4,500
Distribution	20,000	21,517.62	20,000
Total	$124,000	$121,409.04	$ 82,500
NET GAIN OR (LOSS)	($ 14,400)	($ 7,453.99)	($ 29,000)

'Or Whole Earth Household Store'

That phrase under the access of an item in the **CQ** *means that you can mail order it from:*

Whole Earth
Household Store
c/o Zen Center
300 Page Street
San Francisco, CA 94102

Note: Please add $1 to any order to cover shipping and handling. Add 10% to foreign orders. Inquire for UPS or Air Mail postage charges. Anything other than items so listed — orders for books, maps, etc., published by **CQ** *or letters, material for the magazine, subscriptions, contributions, complaints, — should be sent to:*

The CoEvolution Quarterly
Box 428
Sausalito, CA 94965

POINT Financial Report

	PAST QUARTER Nov.,Dec.,Jan. 1979
CQ (detail above)	
INCOME	$121,409.04
EXPENSE	128,863.03
Next Whole Earth Catalog	
INCOME	—0—
EXPENSE: production	3,828.09
CQ Books	
INCOME: Direct mail-order	3,581.50
EXPENSE: Mail-order supplies	1,464.34
Catalog & Epilog	
INCOME	
Penguin-Viking	7,838.24
Direct mail-order	1,898.60
EXPENSE	
Mail-order supplies	—0—
Maps, Posters, II Cybernetic Frontiers, Marbles, Postcards	
INCOME	12,225.89
EXPENSE	962.28
T-Shirts	
INCOME	5,056.55
EXPENSES	3,245.60
Miscellaneous	
INCOME	
Point, Miscellaneous	2,261.04
Disney — O'Neill Lawsuit	110.00
EXPENSE	
Point, Miscellaneous	1,214.21
TOTALS	
INCOME	$154,380.86
EXPENSE	139,577.55
NET GAIN (LOSS)	$ 14,803.31

POINT Balance Statement 31 Jan. '80

ASSETS	
Cash in bank	$ 65,418.17
Investments	49,163.00
Accounts Receivable	
Distributors	38,189.23
INVENTORY	
Back issues, CQ	163,642.42
Maps, posters, marbles	
II Cybernetic Frontiers	2,799.45
Mail-order LWEC & WEE	3,146.00
Mail-order CQ books	787.50
Penguin Inventory	
CATALOGS ($1.73)	2,252.46
EPILOGS ($1.01)	17,588.14
Pomegranate Inventory	2,250.00
Miscellaneous	
Paper at Waller	11,388.00
T-Shirts	2,032.52
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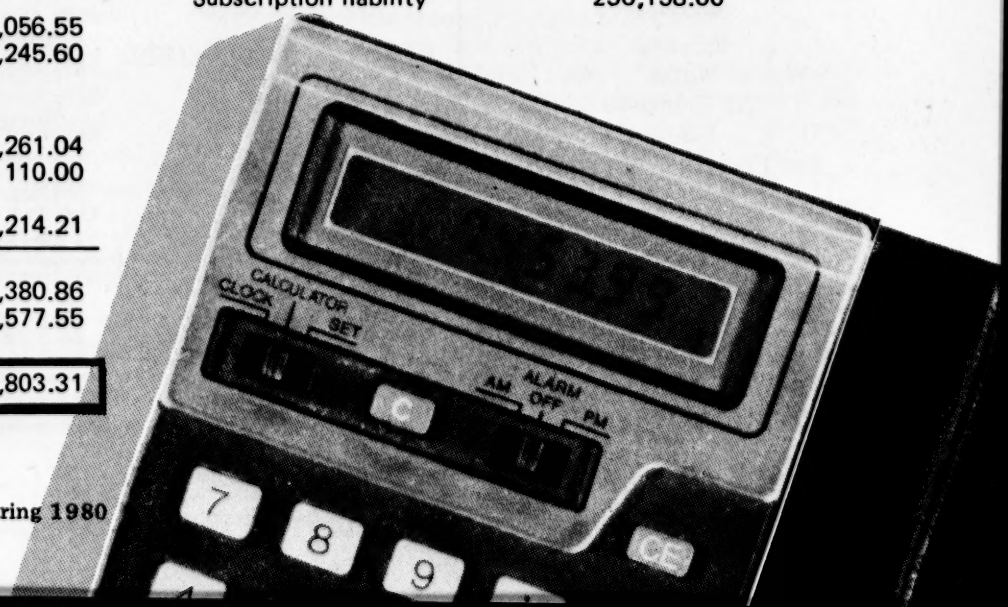
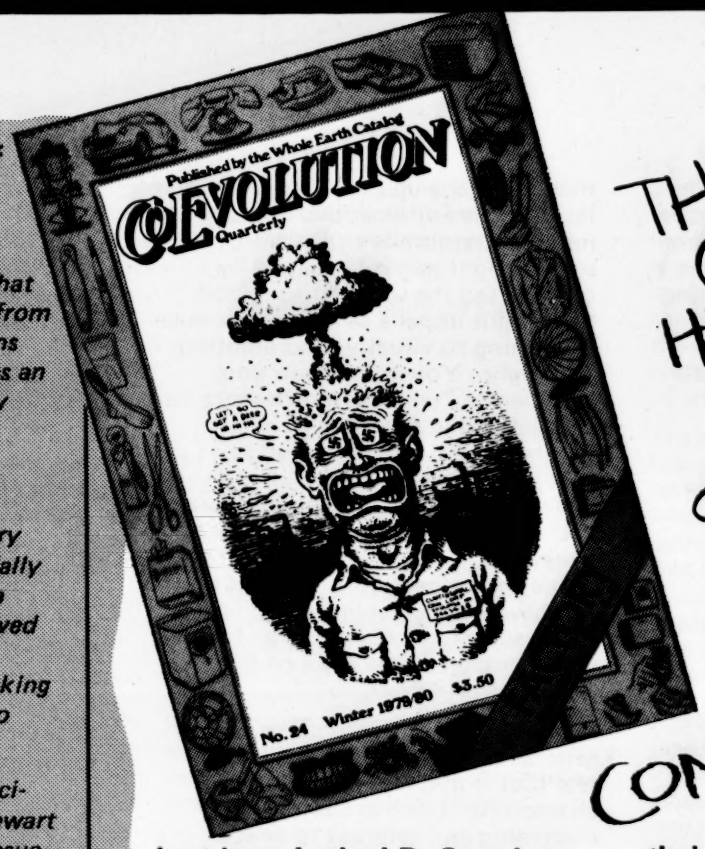
Accounts payable	—0—
Deferred SB salary	8,475.39
Subscription liability	250,158.00





THE CRUMB HERBERT BRAND SWASTIKA FACTORY COVER CONTROVERSY

by you

Last issue I asked R. Crumb to do a cover about a remarkable poem we were printing called "FACTORY." This is what he sent in and what we printed 50,000 copies of. Retired assistant editor Anne Herbert, who had an article in the issue, objected strongly. I suggested she say so in the magazine. Her letter (left) looked unconversational by itself so I added my two cents.

And then the readers added theirs. Ninety-one letters — 41 disliking or hating the cover (3 cancelled their subscriptions), 31 liking or loving the cover, and 19 mixed, informative (swastikas aren't just Nazi, you know), peace-making, or indecipherable. There were some surprises. (Incidentally nearly everyone praised the poem highly, and most went out of their way to say something nice about the magazine — to which the staff replies in chorus, "shucks.") **—SB**

I think that the cover of this issue of the CQ is immoral because

1. It uses a symbol (swastika) that acquired its force and meaning from the murder of 12 million civilians and the devastation of Europe as an attention getting device, thereby showing a seeming indifference to the importance and evil of those events.

2. It looks like it's saying factory workers are fascists. It is especially important for a magazine with a staff and readership as far removed as CQ*'s is from the necessity of doing factory work to avoid making such a statement or appearing to make such a statement.*

Because I don't want to be associated with this cover, I asked Stewart to take my writing out of this issue. The article by me that was going to appear — more answers to the "window" questions — has been removed. Some of my book reviews remain because it was too late to take them out when I made the request.

—Anne Herbert

Some CQ *members who have seen the cover also have very strong objections to it, though they would not all state their objections as I have stated mine. They are:*

Evelyn Eldridge-Diaz
David Burnor *Isabella Kirkland*
Nancy Dunn *Kathleen O'Neill*
Lorrie Gallagher *Donald Ryan*
Andrea Sharp

Editor's lame reply

Reader, you are invited to comment on all this, and/or alter the cover art to taste, and/or work to improve or replace de-humanizing factory conditions.

While not delighted with the swastikas (they remind me of spelling America with a "k"), I am convinced they're integral to Crumb's idea. He's an old hand with American taboos and symbols, and just because I'm among the offended this time, I'm not about to censor him. Everything in the cover is in the poem — it's one artist's interpretation of another artist's work. And if CQ *is marginally different from other publications, it is partly in our defense of the contributors' material from the depradations of insurance mentality or group think. That's how we got in trouble with Disney (I'd do it again).*

Irrelevant explanation: the last time I seriously bucked the tide of office opinion was in hiring Anne Herbert for assistant editor. I lucked out that time and it made me cocky.

—SB

. . . I absolutely agree with Anne Herbert about the callous insensitivity of Crumb's cartoon of the mushroom-headed fascist. It is arrogant hippie elitism at its leaden worst. One effect that I'm sure no one intended was the one it almost had on me: to persuade me that I didn't want to read the poem that it illustrated. We all come from working class somewhere, and who needs to read another put-down of the lobotomized redneck? Fortunately, the first few lines of Antler's moving work dispelled *that*, but underscored how badly his poem and the magazine were served by Crumb's immoral work. Crumb is, after all, the artist of uglification, of scattergun contempt for people, and not a very good artist at that. I don't think he's worth using even when he's not being offensive. . . .

Eugene Price
Putney, Vermont

Anne Herbert is wrong about the Crumb cover. Just because **CQ**, like the catalogues before it, has the dominant aspect of turning the whole earth into a very tasteful posturban shopping plaza for the privileged — "The L.L. Bean for beatniks," "new ideas and things for the man (or woman) who has everything but doesn't want to admit it" — doesn't mean that the magazine has to remain hiply suprapolitical forever. . . . A fully human response to the strong poem and Crumb's cartoon requires not just more artistic interpretations of the situation but tough, unified, practical opposition to the ruling class that owns the factories. **CQ** hasn't been giving us much help with that, but perhaps reader response to No. 24 will be a start.

Charlie Keil
Buffalo, New York

Immoral? I thought the cover to No. 24 was just plain *tacky*. Your excuse was that you refuse to censor R. Crumb, but isn't the function of an editor to do exactly that? That is, to improve or eliminate substandard material. Quality, please! I don't think you're doing R. Crumb a favor. He sadly needs the guiding light of a good editor these days. . . .

Dale Kennedy
Anne Arbor, Michigan

. . . It would seem almost self-evident that a magazine apparently on the financial brink would not choose

even slightly repulsive material for its covers. You are trying to *attract* people, right? So while I'm not urging you to go to the opposite extreme, I think you're unnecessarily hurting yourself in commercial terms. . . .

Peter Wernick
Longmont, Colorado

Please send me another 50 copies of CoEv Winter 79-80 – they are selling very well on the stands and I am almost out.

Thank you

Bob Hitzke
Bear Family Distributors
Tucson, Arizona

After reading **CQ** one year I decided to give gift subscriptions to my mother, father, & sister. And what do they get on the cover of their first issue?!! Jesus Christ, man, have you lived in San Francisco so long you've forgotten what it's like to communicate with ordinary Americans?!? . . .

Michael Beeson
Utrecht, Holland

. . . If Herbert won't admit under hypnosis that, say Brand broke his neck and was incommunicado, as acting editor-in-chief she would have also run the cover uncensored, if that had been Brand's earlier intention and Crumb's understanding, then she should be eased out and into a post where her limitations of perspective would neither threaten the stake fellow coevolvers have in this publication nor hamper the flowering of her other talents.

Robbie Franklin
Jefferson, North Carolina

i won't resubscribe to coevolution: latest cover one more dumb thing think maybe you've outlived/forgot your usefulness

anne herbert should start her own publication.

Edward R. Cain
Aberdeen, Washington

For $15/10 issues you can get her **Rising Sun Neighborhood Newsletter.** *Or you could pick up next Fall's issue of* **CoEvolution,** *which she is guest editing.* —*SB*

. . . Yep, it's ugly – and it's attention-getting – and as such, it reflects an aspect of Mr. Crumb's vision which is no doubt nerve-wracking and at times offensive to some members of his audience who harbor a more pleasant view of the world, and is certainly a rude shock to those of us who prefer to contemplate "Trooth/Byootie" exclusively. However, the ugliness of the visual image is only a reflection of an underlying ugliness which is an integral (and perhaps even a necessary) part of the human condition. I think a case could be made that the ugliness of this particular image is extreme, but the root of much extremism is frustration, and some insight might be gained by considering the sort of frustration that might impel a person to produce something so visually (and emotionally) ugly. You mention in your comment a "seeming indifference to the evil and importance of those events"; consider the opposite – that is, a deeply rooted fear of the evil and importance of those events and a frustration stemming from a belief that the roots and the nutrients needed for a new flourishing of such evil have not been eliminated (as so many short-sighted people so fervently hoped at the close of the Second World War). . . .

. . . If you are going to make any generalizations about **CQ** readers, I feel that it might be more apt to characterize them as "sufficiently discerning and tolerant to enable them to proceed beyond apparent or actual offensiveness in an attempt to determine if there might perhaps be something of value or interest to be learned" rather than as "far removed from the necessity of factory work." . . .

C.F. Peck
Burlington, Vermont

. . . I take violent exception to the misguided notion that the swastika "acquired its force and meaning from the murder of 12 million . . ." I am Cherokee. We have used this symbol for many thousand years before the most recent flood of immigrants came here. It does not represent the extermination of human life. It represents the goingness of the universe, the swirling nature of everything-tied-together. That some crazy person somewhere has perverted the symbol does not detract from its wholeness for people who know its true meaning. The symbol, besides its antiquity, is nearly universal in human cultures around the world; usually having a similar meaning. So there, nyah. No one tells me what my symbols mean to me, I'll tell you if you ask (even indirectly). So, I'm glad you published the cover, whoopee for you. On the other hand, I know some factory workers and some of them are fascists. Some of them aren't. Your cover is a degrading caricature even though it does have some reflection of reality in it. Boo for you. An ambivalent reaction? Yes, and that's life. I re-upped so that must tell you something. . . .

James L. Kirkland, Jr.
Davenport, Iowa

When I read the fall issue of **CoEvolution,** I thought it was just another dumb hippie magazine, but when I saw the winter issue, w/ its swastika cover & disingenuous explanation by the editor, I realized that it was not only stupid, but vicious. Please cancel my subscription.

John Gartner
Orangedale, Canada

. . . Much the same thing happened late this summer when Jules Feiffer used the word "nigger" in a cartoon [in the **Village Voice**]. The context was such that many contributors were offended. Angry letters were exchanged, articles were withdrawn and, generally, much ado was made over practically nothing.

Yes, I think that the swastika is a repugnant symbol. However, censorship is much worse than an occasional bad symbol. Crumb has paid his dues and earned the right to be artistically immature, dumb, perverted or whatever – (in this case the cover happens to be none of those things) . . .

Clifford Abrams
Evanston, Illinois

. . . The R. Crumb cover controversy reminds me of something going on lately here in Austin with punk rock group names like "Sharon Tate's Baby." Folks have been getting very upset.

I agree with your decision not to meddle with Crumb's work. I remember Jorge Luis Borges coming here several years ago and talking about his experience as a writer. He said then, "I cannot be held responsible for the products of my imagination." A dangerous statement . . . and true.

Bud Spurgeon
Austin, Texas

. . . Crumb's front cover is a caricature, a distortion, which trivializes the deep anger and eloquence of Antler's poetry and scapegoats those whom the poet would redeem. . . .

Jim Torbert
Lead Hill, Arkansas

Just a note to say I agree completely with Anne Herbert about the cover. I see the logic of not censoring, but my gut reaction to a swastika is revulsion, terror, hate, dismay . . . That picture seems to say Amerika in a way I can't accept. This country is not perfect but I prefer it to almost any other. I cannot accept that picture of the American blue collar worker . . .

Gail Wiener Troy
Shipman, Virginia

The above came on a postcard with this picture on the flip side, airbrushed crotch and all. —*SB*

What ever people see that bothers them in the cover, is probably best expressed by Marshal McLuhan: "Our world has become so complicated that almost any statement you want to make about it can be proved to be true." So if the cover bothers you, you should ask yourself why you proved it, and stop avoiding it.

Lynn Hansen
Boise, Idaho

Heh woe. Everyones of us reader ships has to navigate through somethings in **CQ** we find eminently offensive (for me it's usually the museum-piece-beatnikpotree-endlessly-re-toured, and other birth defects), but we stay aboard because we're never a'bored. why should Little Annie Herbert be spared an imperfect world (anyhow?).

Behind you 51%!!

Ansel Wolf
New Haven, Connecticut

I agreed with Anne Herbert about the R. Crumb cover until I read the poem. That almost the entire adult population of the industrialized world has become walking dead is perhaps more subtle than the murder of millions of Jews, or 1/3 of the Cambodians, or a lot of American Indians, etc. The oppressed are exterminated and the oppressors turn themselves into zombies.

The factory may be like Auschwitz, but a factory worker who is not working in order to get out, unlike a German Jew, has *chosen* to be there. Acquiesced. . . .

Susan Hunt-Hubeny
Dexter, Maine

CHILDREN OF FACTORY WORKERS SPEAK

. . . My parents both worked in factories. My father at Mare Island Naval Shipyard (15 years) and Bethlehem Steel. My mother at Rough Rider, Inc. for 20 years and lately at Sawyer Tanning. Both of them could be described as kind, intelligent and sensitive people. Why did they work in the factories? I guess they lacked the power pustule. I would like to tell you how it happened. But I don't know if you're interested. It was circumstances. They took the immediate first best chance & it stuck. My parents did not work in factories because they were ignorant, beer-swilling, pronuke, fascist assholes. In my 30 years of life and 7 years of college which includes 2 years of graduate school, I've known maybe a half a dozen men more well-read than my father. I've yet to meet a woman more dedicated to doing a good job of work and doing right by her family than my mother. . . .

Jan Wood
Boyes Hot Springs, California

. . . Notwithstanding Crumb's expertise handling of American taboos and symbols (and I usually enjoy his humor very much), he's gone too far this time. We are talking about human beings, and I wonder if the guys who waste away year after year at Continental Can trying to make a buck to support a family, would get the joke. The delicate juxtaposition of the cover art with ANTLER's superb poem might be a bit beyond them. Not always schooled in literary niceties, they might even think someone was making fun of them. . . .

. . . I grew up in a small town in Pennsylvania during the '40s and '50s, and my father worked for 22 years in a factory making tires. He was a serious and sensitive man who had been orphaned at a very young age as a result of the influenza epidemic of the early '20s. He grew up poor and largely uncared-for, and the natural thing to do upon coming of age (18 in this part of the world) was to sign up at the local factory for work. This he did, as did everyone else in his milieu; although he continued his literary studies (he was an early aficionado of James Joyce) at night and on weekends. Someday, he would make it out of the factory and would make something more "worthy" of his life.

Well, as such circles tend to close upon a person, he never made it out of the factory. He fell in love, got married, and stayed on at the factory. The kids were coming along. Still, he pursued his studies day in, day out, late into the night.

He did "Go get a beer" after work. Often he did. Wouldn't you, after grinding away in 120-degree heat in the noxious fumes of untreated rubber? Wouldn't you, when your daily expenses had piled way up over your head, and there was seemingly no way, on your salary, to pay them (unless the United Rubber Workers went on strike, which would mean possibly three months out of work, and "getting so far behind in order to get that extra 25 cents an hour, that it would take three years to catch up")? Wouldn't you, when, despite the fact that you were carrying a responsible load in the American economy, going to work in your overalls you were regarded by the middle-class sector of town as some kind of subhuman, *untermenschen?*

These guys need their few beers, just as the expense-account executive, living in his different world, needs his two martinis before boarding the five-ten out to the suburbs. It dosen't make them bad people. It doesn't produce swastikas in their eyes.

Some of the men my father worked with, while on duty in Europe during WWII, were present to liberate the concentration camps. These memories haunt them, as they haunt everyone who was there. I am sure they would be deeply hurt to see swastikas drawn in the eyes of one of their cartoon-counterparts. . . .

Then there was my father's best friend, a man who was quiet and sensitive and who shared my father's literary interests. ("I could have gone to college; I had the marks. But things were bad with my parents. I had to go to work.") Bill said he couldn't stand the plant any more. It was killing him. He would have to quit or go crazy. My father said nothing. He'd already spent 15 years of his life in that place. Some things are just too deep for words. Bill didn't quit, but had a nervous breakdown and had to go to the "State Hospital" for 6 months. When my father visited him there, he said, "At least I made it out of that place." My father said nothing. Bill was released from the hospital and couldn't find work. He went back to the plant. They accepted him back and even gave him his old job. One month later, Bill's daughter found him dead in the bathroom, a bullet through his head.

If you think I am exaggerating the case of the factory worker, I can assure you I am not. These men and women suffer because of the deadening, repetitive, uncreative nature of their work. But they suffer more — far more — from the condescending view American middle- and upper-middle-class society takes of them. . . .

Margaret A. Conway
San Francisco, California

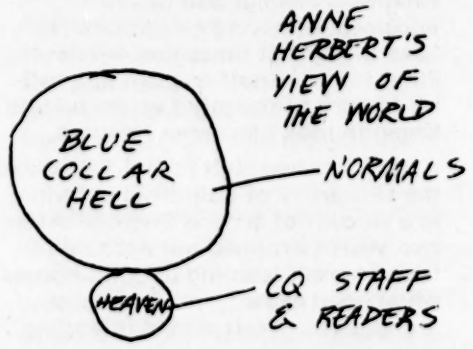
FACTORY WORKERS SPEAK

[Twelve letter-writers identified themselves as factory workers. Three of them took offense at the cover. —SB]

. . . R. Crumb's artwork is infinitely more flattering, accurate, & moral to me — a part time factory worker — than is your depressing radical chic objection about not alienating we mere normals. . . .

Your friend,

Willy Ross
Napa Valley, California



more →

In August, 1971 the Liberation News Service distributed this cartoon by Crumb. No complaints were heard. Do we live in touchier times? —SB

I appreciate your thinking and your response to the current **CQ** cover, Anne. The drawing is not in the interests which **CQ** promotes, of human development and fulfillment. It is hurtful to factory workers and to all of us because it perpetuates a stereotype of factory workers as mindless, with no interests other than "let's go have a beer," when in reality we are a very diverse group of intelligent, aware human beings each with a wide variety of interests and intellectual curiosity. For example, some of us read **CoEvolution Quarterly** . . .

Jim Bowling
Santa Monica, California

. . . I see a one armed bandit crazy whirling around and around and then — click click — double swastika. Kaboom. The man-machine ex/implodes: time for a beer heh, heh, ulp. . . . I'm Jewish & know Nazism to be more than the murder of civilians. And the only attention getting device on the cover is the trick printing of **CoEvolution** in blocks & caps & italics (sort of) with shading and so on. Art Crumb can be *trusted*. . . .

Chuck Miller
Houston, Texas

. . . I am surprised to hear from Anne Herbert that the readership of **CQ** is "far removed from the necessity of doing factory work." Except for the fact that I suspect that the majority of factory workers are women and minorities rather than white men, and that there are no swastikas in my eyes, reflected or otherwise, R. Crumb's drawing is a frightening mirror of the pain, anger, frustration, and desperate need for escape I have felt as a factory worker. I believe that we find ourselves in factories, real or imagined, because of overwhelming feelings also real or imagined, of having no options. I have thought at times that Sylvia Plath found herself trapped in a hellish factory of the mind where suicide began to look like sweet freedom.

After I finished high school I attended the University of California at Irvine as a student of art and English. After two years I dropped out because I found myself learning to build houses when I had never learned to build foundations. I left school intending to fill this gap. I decided to find work and continue my education through reading, writing, drawing, listening and looking at the world around me. With no college degree, no job experience, no typing skills, no desire to be a waitress and a social conscience that wouldn't accept a job that had anything to do with furthering the Vietnam War, I stumbled on non-war-releated factory work as a means of earning a living. The pay was low, but I felt relieved to be working in a way I thought to be non-destructive. At the time, I had no notion that my choice of work was potentially self-destructive.

Since then I have worked making radio knobs, candles, recording tapes, IUDs (in those days I had one and was not aware of the dangers), heart pacemakers, ski pants, backpacks, and am presently working in a sail-making shop as a sewing machine operator and sailmaker's helper. Although sailmaking is far and away the highest form of factory work I have done, I still wake up some mornings from the wondrous dreams that have been my salvation and ask myself why I am still working in a factory. Seeing R. Crumb's image of a factory worker which so closely matches my recurring feelings of being about to explode, and reading Antler's eloquent poem "Factory" have left me shaken. I've made my escape time and again, but I keep turning up in factories. Here I am, ten years down the road and I keep telling myself that these are crucial lessons in foundation building. I'm wondering what the house will be like.

I like your magazine. It's as full of contradictions as I am.

Amanda Rachie Prowell
Bellingham, Washington

. . . I read **CQ** and I do factory work. In my factory we stuff transistors and things into holes in circuit boards to make electronic gizmos. I don't personally stuff the boards. I program computers to simulate and synthesize the electronic gizmos. But when considering the spectrum of human expression, I don't see much difference between stuffing transistors into boards and stuffing programs into computers. It seems to me that the entire staff of **CQ** is also doing factory work. You're stuffing words into a magazine — Just another product like cans and electronic gizmos.

Now, do we work in good factories, as opposed to the bad factories which pollute and slowly kill and remind poets of Auschwitz? I don't think "We're good; They're bad" works in our society. I feel our system's cycles are so interwoven that we cannot say "My product is good; Your product is bad." I feel we all share the responsibility for whatever happens in our society.

Next, what can we do? Can we back off our technology to OKEE-DOKEE level? Where is OKEE-DOKEE? Just below nuclear reactors? Or chemicals? Cars? Refined sugar? Here's a method of Technosurvival:

1. Figure out how fast each level changes our ecosystem.
2. Figure out how fast we can halt any change.
3. Stay below any level that can kill us before we can stop it.

Obviously we are above that level now. It seems to me that an agrarian society is below that level. It has been summarized before:

Dee-dum dee-dum dum The chores
Dee-dum dee-dum dum The stores
Dee-dum dee-dum dum Fresh air
Dee-dum dee-dum dum Times square

etc.

Doug Brown
Beaverton, Oregon

SPACE CASE SPEAKS

I think your magazine is the most intelligent important publication in the world.

And your early recognition of Lovelock and "Gaia" is a high-point of the '70s decade.

While I sympathize with your attempts to "help out" poor Crumb (I'll be glad to donate a small check for his rehabilitation) I protest publishing anything by the poor wretch. Public consciousness is part of the ecological landscape — perhaps more important than the physical atmosphere. For almost two decades Crumb has put out more aesthetic pollutants, more glorification of ugliness, pessimism, derogation of the human spirit than anyone I can think of.

He is more of a menace than nuclear plants. I am totally in agreement with Anne Herbert — on this and most other issues.

Timothy Leary
Los Angeles, California

MRS. CRUMB CONFESSES

This letter is in response to criticism of Robert's cover with Swastika eyes (Winter '79-'80)!! I feel connected to it in a way. Robert had planned on doing a collage on the front cover similar to the back. He asked me wh what I thought of it and I said I thought it looked too impersonal and needed some drawing more responsive to the poem "Factory." So he came up with the controversial cover drawing. Being Jewish, I naturally do a double-take at that cosmically powerful symbol "swastika" and on the cover of Co-Ev yet, oi veh!! It really entices me to examine the contents!! I was deeply moved by the poem "Factory" & I also think that Robert's cover is a strong, instinctual, gut-level reaction to the work!! The description of workers unwittingly contributing to the death of the planet, their fellow humans, themselves!! True "Nazism" . . . not an isolated symbol, not a past

movement but an ongoing horror, perpetuated by the same forces of economic greed then & now! To me, Anne Herbert's reaction is the all too predictable knee jerking liberalism . . . shallow knit picking, & lacking a historical perspective!! Now if you want to offend me with a true fascist symbol, you can do it with the short-stop logo (enclosed on matchbook!).

Incidentally I recently visited my grandparents in N. Miami Beach and I did not show them Robert's cover.

Sincerely,

Aline Kominsky-Crumb
Winters, California

[A photo of Aline from her great first comic book **The Bunch's Power Pak Comics**, *available from Kitchen Sink Enterprises, Box 7, Princeton, WI 54968.]* —SB

THE POET SPEAKS

. . . The Crumb cover surprised me and at first I wasn't sure — still preferred Blakean mural on side of bldg on 24th and Shotwell of Adam and Eve-like figures against backdrop of "Satanic Mills" I recommended to you in Oct. 3rd postcard. But the more I look at the Crumb the more powerful it becomes: completely justified by references in my poem and footnote, especially the Speer quotes. The frame Crumb made for his drawing, also the whole back cover — superb. Obviously my poem does not put down factory workers, but clearly invokes the realization of the divinity in each. Great idea of whoever did the layout to use photos of nine separate factory workers (the first one a printer!) in nine different factory situations! The "I" I lament wasted in "Factory" is them as much as me. . . . Am currently savoring the zen of putting supermarket circulars on doorknobs out of desperation to raise January rent, while yearning to return to my fulltime job of writing. . . .

Antler
San Francisco, California ■

Gossip

Cartoonist Dan O'Neill's luck has turned. The board of **High Times** *magazine summoned him to New York to assist youthful editor/publisher Gabrielle Schang in reversing the magazine's decline in sales. His $1,000/week salary is a decided improvement in his financial picture. We always used to pay for his cartoons on delivery so he could afford the bridge toll to get home.*

With the Disney lawsuit now settled, Dan is also out from under the $250,000 damages from his prior court beef with Disney. Dan claims he will continue cartooning for **CQ**, *so we can look forward to more insights such as his assertion in our Xmas mailer that "Spaceship Earth is now at her furthest point from the sun." A plethora of readers wrote that in fact the Earth is closest to the sun at the winter solstice and we now have no credibility left whatever. Good: credibility is a tedious burden.*

On our last mailing insert, right where we brag that it is recycled paper, we threw in the question, "What have you read lately that electrified you?" Gordon Watson of Burnaby, British Columbia, wrote, "I read that the local paper recycling plant here is the biggest single P.C.B. polluter in Canada — 5 pounds per day into the river." We have removed the question from the insert.

The Next Whole Earth Catalog *proceeds apace. As might be expected, we've gotten all excited about the project, generating quantities of ambitious new material for it as well as trying to skim the cream off the cream of our past efforts. One bit of business, just decided, is who will distribute. Our agent John Brockman ran a thrilling auction in New York, with dear old Random House (who distributed the first 1.2 million copies of* **The Last Catalog**) *the winnah. The critical points in the agreement are that Random keeps 22.5% of gross billing (about $1.46 per $12.50-or-so copy) and finances the whole of the printing, the cost of which had us worried. ($268,000 for each 100,000 copies, assuming a 608-page book.)*

Alert readers will have noticed that the access on review items in this **CQ** *now says, "or Whole Earth Household Store." That refers to the plans of the San Francisco Zen Center to open a proper retail store which will not only handle* **CQ** *and* **Next Whole Earth Catalog** *items but also have splendid tools to retail, such as the English spades and forks shown on page 65. Until they find a location for the store, their mailorder service continues as before (improving markedly on the somewhat slow service of recent months).*

This April Assistant Editor Richard Nilsen will return to his farm in Colorado and be replaced by long-time **CQ** *contributor Stephanie Mills, who previously edited* **Not Man Apart, Earth Times,** *and* **Earth.** *With this kind of depth on the bench we could probably beat the Russian hockey team at nerf ball.*

Meanwhile Assistant Editor-emeritus Anne Herbert is churning out **Rising Sun Neighborhood Newsletter** *items for serializing sort-of in* **The Next Catalog** *and has taken on guest-editorship of the Fall '80* **CoEvolution,** *whose production coincides with maximum hysteria over getting the* **Next Catalog** *done. We look for an interesting July. If you're contributing to the interest, get* **Catalog** *material to us by May 1 and Anne's-* **CQ** *material in by May 14.*

Nancy Dunn has been elected treasurer of Media Alliance, a Bay Area group improving treatment of free-lance journalists. David Burnor is building a replica of the famed Canadian fishing schooner "Bluenose." The original is 143 feet long; his is 34 inches. I have a new moonlight job writing a monthly column for **New Scientist.** *They pay in pounds, 100 each time, which are sounder than dollars these days — a round-about way to beat inflation.*

David Wills refreshed his accent with two months home in Great Britain. He reports distinct improvement in the graffiti, such as: "Sudden prayers make God jump"; "Living unit, sweet living unit"; "Even the deaf have heard of Ricky the Skinhead"; "Nuclear waste fades your genes"; and, most cynical of all, a button that proclaims, "Everything is great." I got to travel to Barcelona, Spain at Christmas for a conference. The high point was an afternoon climbing in the towers of Gaudi's cathedral Sagrada Familia — a thrill akin to hang-gliding or sky-diving. One's legs and aesthetic habits shake for hours after.

J. Baldwin, ensconced with the New Alchemists on Cape Cod, visited neighbor Malcolm Wells, the underground-house architect. "His new house, if it works, will be inter-

Gossip (continued)

nationally famous. His kid, Cappy, just married Stewart Mott." (The publicly generous to lively causes Stewart Mott.) J. edits for **CQ** *by mail now. A recent note: "I have trouble getting excited about the work of a group, no matter how vital, with a name like (real name, real group) 'The Energy/Shelter Interest Group of the Cooperative Self-Reliance Campaign of the Center for Environmental Options.' " —SB*

How to Submit Things to The CoEvolution Quarterly

1. Send them. *Address them to Box 428, Sausalito, CA 94965 and drop them in the mail. We are sitting here, being bored as anyone else, reading all the mail, hoping some of it will be good.*

What's good? New, not read a hundred times before, not an imitation of old **CQ** *articles, often a personal passionate statement. Articles that sound like articles are often dead. Consider yourself to be writing a letter to an intelligent, uninformed friend about something that is interesting/important to you. We often print things that everyone, including the author, thought were too odd to be printed anywhere. Remember that we print all lengths from a paragraph to many pages, so don't puff a good, short idea into four tedious pages. And please don't try to please us by creating something you think we'll like. Being hustled is boring. We'd rather print true love — yours for your subject.*

All things are possible and may be printed. We have no editorial policy for or against any subject matter.

2. Enclose a stamped, self-addressed envelope. *That's courtesy. You are much better at writing your address than we — all that practice. If you don't address and stamp an envelope for us to reply or return things in, you're asking Andrea or Stewart or someone to be your secretary. If we all did our own clerical work, there would be no secretaries.*

3. Keep a copy. *We are careful and good but not perfect. You should never send anyone the only copy of anything.*

4. Be sort of patient. *We often reply on stuff the day we get it, but you shouldn't get worried about no reply for about a month. Sometimes we have to show things to our far-flung, part-time editors, and that takes a while. On the other hand, don't wait a year to tell us you sent something and didn't get an answer. Many manuscripts have flowed over the desk in that time, and it will be hard to remember what happened to yours or if we ever saw it.*

5. Be legible and put your name and address on the first page of the manuscript. *Those are all the rules of form we have. It's helpful to type if you have a typewriter, but handwriting is fine if it's neat. The name and address are so you don't become a mystery person if your envelope gets separated from your manuscripts.*

6. Avoid query letters. *Query letters are what writers' magazines tell you to send editors to find out if they are interested in a subject. We're less interested in the subject than in what you do with it. If at all possible, please send us the manuscript.*

Exception: You have found an interesting and complex subject that would take a lot of time and work to write about. If you want to know if **CQ** *might be interested before proceeding, write a detailed, fact-filled letter about what you know and what you want to do, and send samples of your writing. The details and the samples might make it possible for us to make an intelligent reply. But in every case, it's better to send a manuscript than a query. Naked queries from people we don't know yet just make us anxious.*

7. Notes on Book Reviews. *Write to that smart ignorant friend, introduce the book and get out of the way. A paragraph should usually be enough. The quotes are the thing — ideally they should be immediately useful and contain the soul of the book. You don't have to type the quotes, just note page numbers. It's not necessary to analyze the book; just say exactly why you love it.*

It can take a long time to get a final decision from us on a book review. We don't decide about printing it until we've seen the book, which we order from the publisher, who may take a couple of months to send it. (Don't you send the book unless you don't want it back; it's hard enough to deal with returning manuscripts.) However, we will tell you right away if we consider your review a possibility and will return it right away if we don't.

We like to review books of all ages, especially unheard of wonders that got lost in some shuffle.

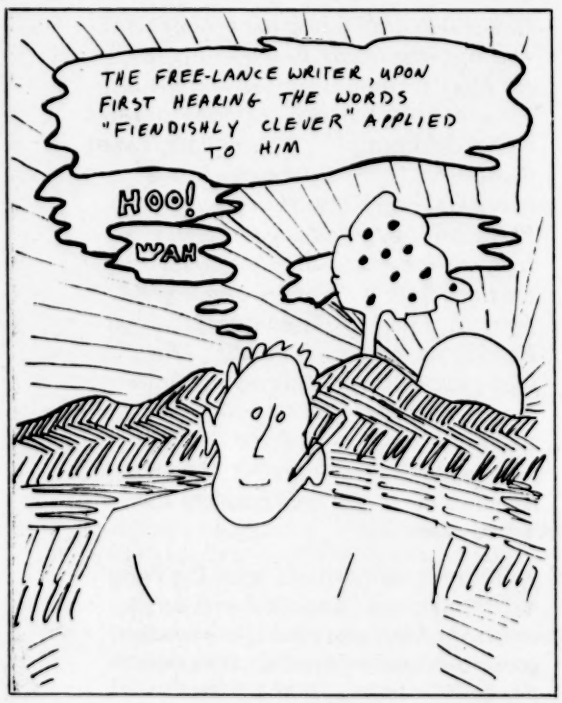
8. Money. *$10 - $25 for letters and $150 - $250 for articles. The article money varies depending on length, wonderfulness and provision of illustrations. Item reviews work like this — you get $10 for being the first to suggest an item and $10 for reviewing it. If you do both, you get $20. You get paid on publication.*

9. Will you still love us if we reject your offering? *Editing is arbitrary. It's hard to explain why any given piece is rejected. To understand that, picture yourself leafing through a magazine, not liking an article, and suddenly being confronted by the author who wants you to explain why you didn't like the article. A cogent explanation would be somewhere between awkward and impossible and definitely time consuming. Our rejection notes tend to be short. It has to be that way if we're to have time to read all the mail carefully. If we turn down your piece, we may not convey in the note that we are grateful for all mail, that mail is all we've got, that the magazine would not exist if it weren't for mail from strangers who are good enough to share the wonders of their world with us.*

We're waiting to hear from you.

—Anne Herbert
for the **CQ** *staff*

Note: Unless your offering is specifically for Anne Herbert's issue (Fall, 1980: deadline May 14), address it to me or to Assistant Editor Stephanie Mills. —SB



Jim Thornton

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Back Issues on next page.
See inside back cover for more details.

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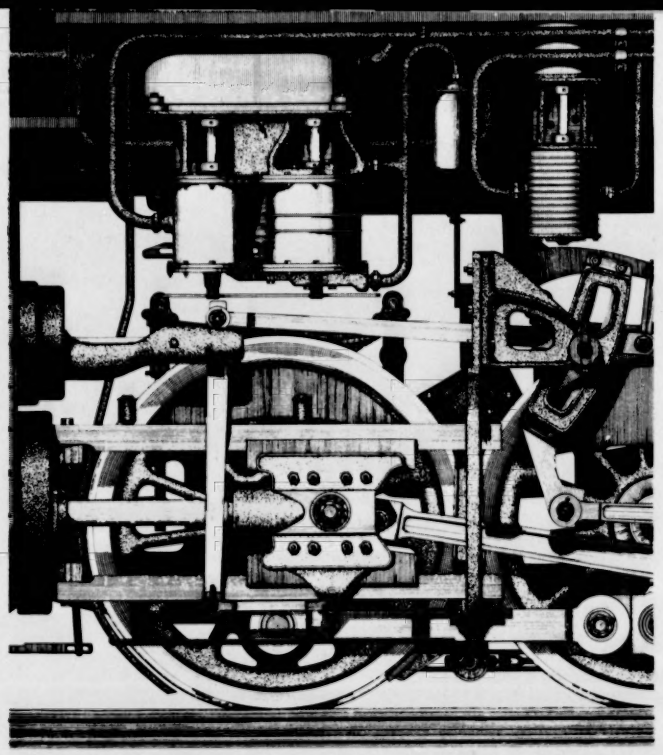

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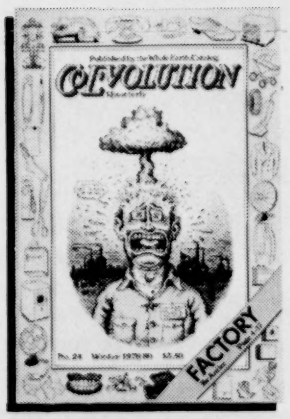
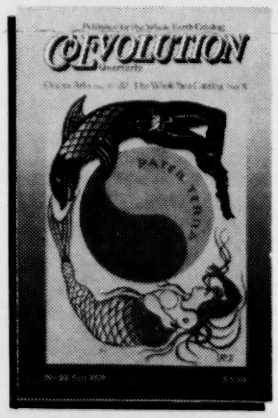


No. 24 (Winter 1979/80)

How modern hospitals got that way and how good design features discovered by people from the Greeks to Florence Nightingale got lost in the modern drive for efficiency, insider and outsider reports on new wave music, Jay Kinney recommending (in a way) some far right magazines, Michael Phillips attacking the myth that it's necessary and helpful to have a lot of money, Gregory Bateson talking about how to stop the arms race, a picture history of solar design from 350 B.C. on, how corporate patenting of seeds will cause hundreds of plant species to be lost forever, and a major poem on the horrors of working in a factory.

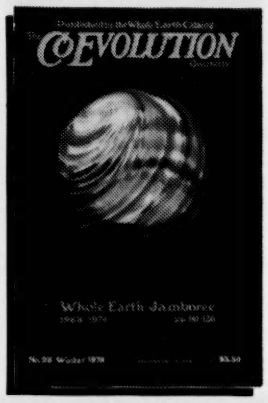


No. 23 (Fall 1979)

Guest edited section by George Putz and Peter Spectre on oceans: John Todd on ocean arks; Phil Conkling models the global carbon cycle; articles on boat restoration, the future of the fishing business and anti-submarine warfare; plus 30 pages of reviews and access in the Whole Sea Catalog. Also a proposal for a 1,200-acre solar village in California, and an update on multinational corporation sponsorship of metric conversion.

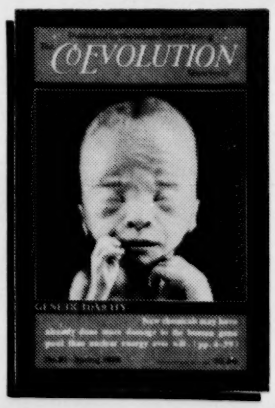
No. 22 (Summer 1979)

Reports on personal computer networks used cross-country for everything from gossip to business conferences to fantasy games, the Oregon women who forced the EPA to ban the herbicides that cause birth defects and miscarriages, the late E.F. Schumacher's belief that tree crops can save British agriculture, and the man who avoided banks and financed his own home by borrowing $10 each from dozens of friends.



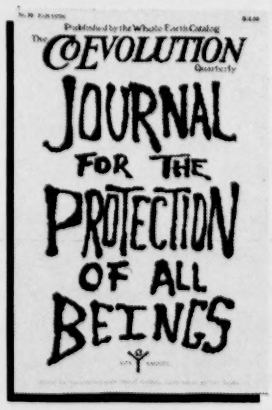
No. 20 (Winter 1978/79)

Fifty-six 5-minute speeches by such *CQ* regulars as Theodora Kroeber, Sam Keen, David Brower, George Leonard, Wavy Gravy, Paolo Soleri, J. Baldwin, Ron Jones, Peter Warshall, etc. Also a proposal for immediate world peace, reports on street performing, a self-sufficient solar home, edible landscapes, and excerpts from Anne Herbert's *Rising Sun Neighborhood Newsletter.*



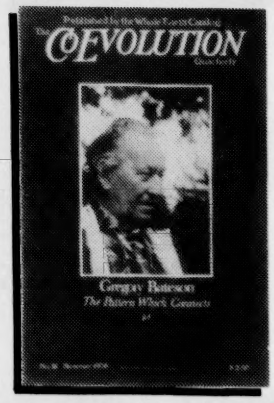
No. 21 (Spring 1979)

How chemicals are harming our genes, Dan O'Neill defying the U.S. Supreme Court by drawing Mickey Mouse, Judy Chicago on "Revelations of the Goddess," most used magazines reviewed by Nicholas Von Hoffman, Ursula Le Guin, William Irwin Thompson, Margo St. James, Ernest Callenbach, Robert Rodale and many others.



No. 19 (Fall 1978)

An entire issue guest edited by poets Lawrence Ferlinghetti, Michael McClure, David Meltzer and Gary Snyder. Entitled *The Journal for the Protection of All Beings*, it includes Allen Ginsberg's "Plutonian Ode," Anne Waldman's "Plutonium Chant," Gary Snyder on the idea of nature in China, Peter Warshall on watching birds on the Farallon Islands and a previously unpublished poem by Jack Kerouac.

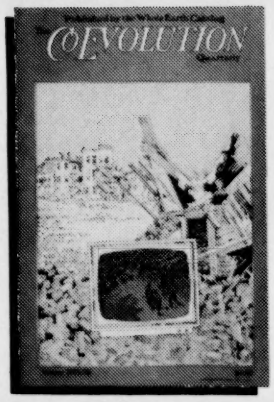


No. 18 (Summer 1978)

Thomas Szasz on why no one should be sent to mental hospitals, part of Gregory Bateson's new book, a special section on space — other countries' space programs, space business, and astropollution; and Mimi Farina on entertaining in institutions with Bread and Roses.

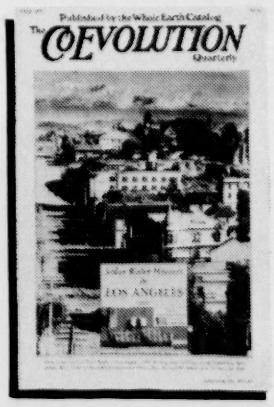
No. 17 (Spring 1978)

How the way you think may cause disease, Wendell Berry debating Earl Butz on what farming should be, Ken Kesey on cops without guns, articles on recombinant DNA as a Good Thing for the environment, how and why to tell your children stories, and off-the-road bicycles.



No. 16 (Winter 1977/78)

Guest edited section on Broadcast: 4 arguments for the elimination of television, an essay on how the mass media are smothering our capacity to create our own dreams, the stories of 4 lost pioneer broadcast inventors (including Nikola Tesla), Paul Krassner on the hypnotic regression of a television addict. Also regular *CQ* features and article on the environmental movement in France, a new kind of wolf in Maine and fire-fighting in California.

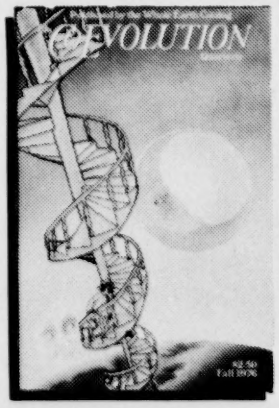


No. 15 (Fall 1977)

How the back to nature movement in Germany in the '20s may have helped pave the way to Nazism, Huey Newton reporting on living in Cuba, articles on new crops for desert areas of the world, starting a Hawksbill turtle hatchery to save the species, what happens at a spiritualist resort, and a report on the solar water heating boom in Los Angeles at the turn of the century.

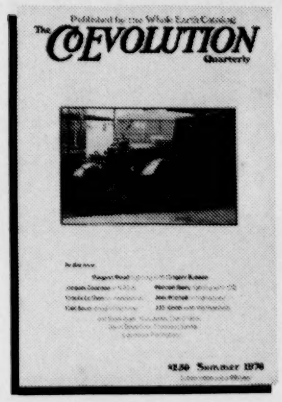
No. 14 (Summer 1977)

Voluntary simplicity analyzed from the viewpoint of spiritual leaders and of businessmen, how astronauts use the bathroom in space, Elisabeth Kubler-Ross, who cares for the dying, tells about the experiences that have made her believe that death does not exist, J. Baldwin reports on wood burning stoves and J.G. Ballard has a science fiction story about an alternative technology Future (concluded in issue No. 15).



No. 11 (Fall 1976)

Underground architecture as an energy-saving, economic and very pleasant life style, arguments over whether the new data from Mars means there's life there, papers from the mind/body dualism conference, and Theodora Kroeber on cross-generational marriage.



No. 10 (Summer 1976)

The Man Who Planted Trees and Grew Happiness: the true story of Elzeard Bouffier; a report on the Hoedads, an Oregon tree-planting cooperative, and Ursula Le Guin on menopause.

No. 2 (Summer 1974)

Paul Krassner's *Tongue Fu,* Paul and Anne Ehrlich on the food shortage crisis, Michael McClure's GORF, and articles on apple picking, bookmaking and Stephanie Mills running a modern salon.

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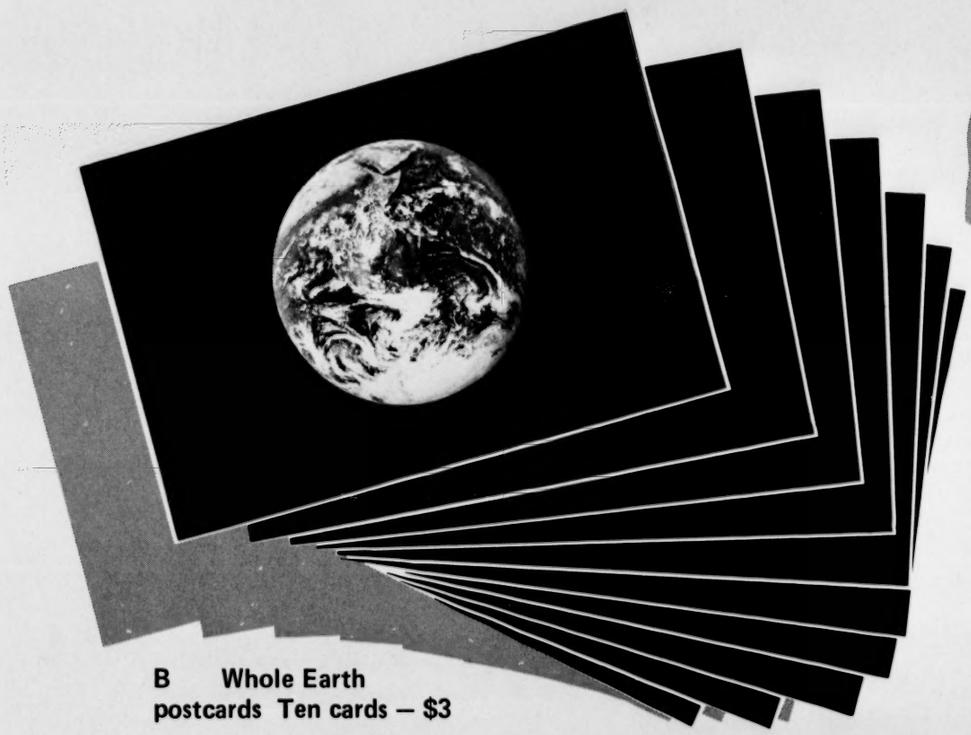

B Whole Earth postcards Ten cards — $3

Like the T-shirts this item evolved from private to public use. For short notes **CQ** has long used this bright, sharp Earth image on our postcards. You requested them for your own notes. Here they are.

C CoEvolution T-shirt $6

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Men's sizes
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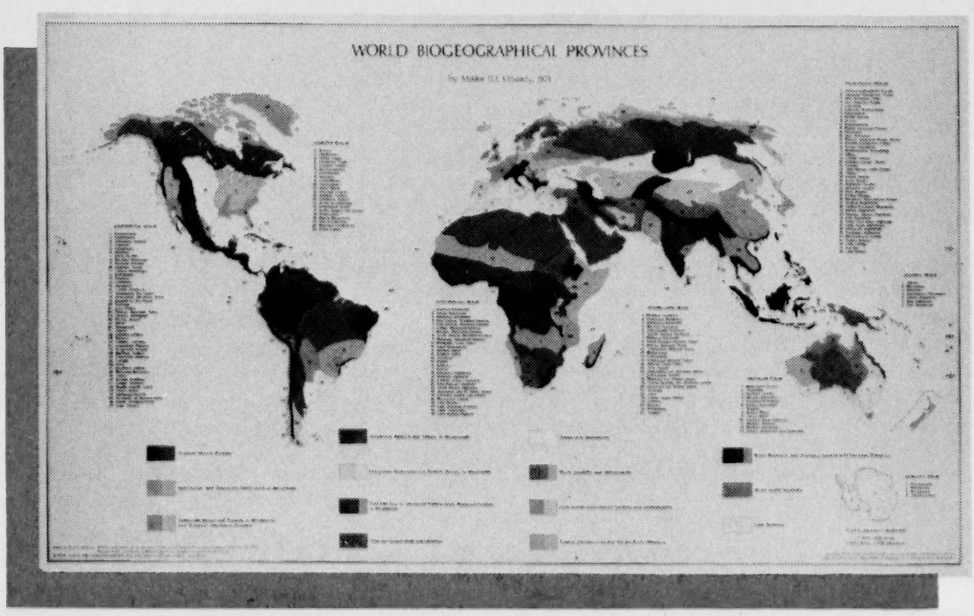
Medium — 38 - 40
Large — 42 - 44
XLarge — 46 - 48



E World Biogeographical Provinces map 22½" x 39" $3.50

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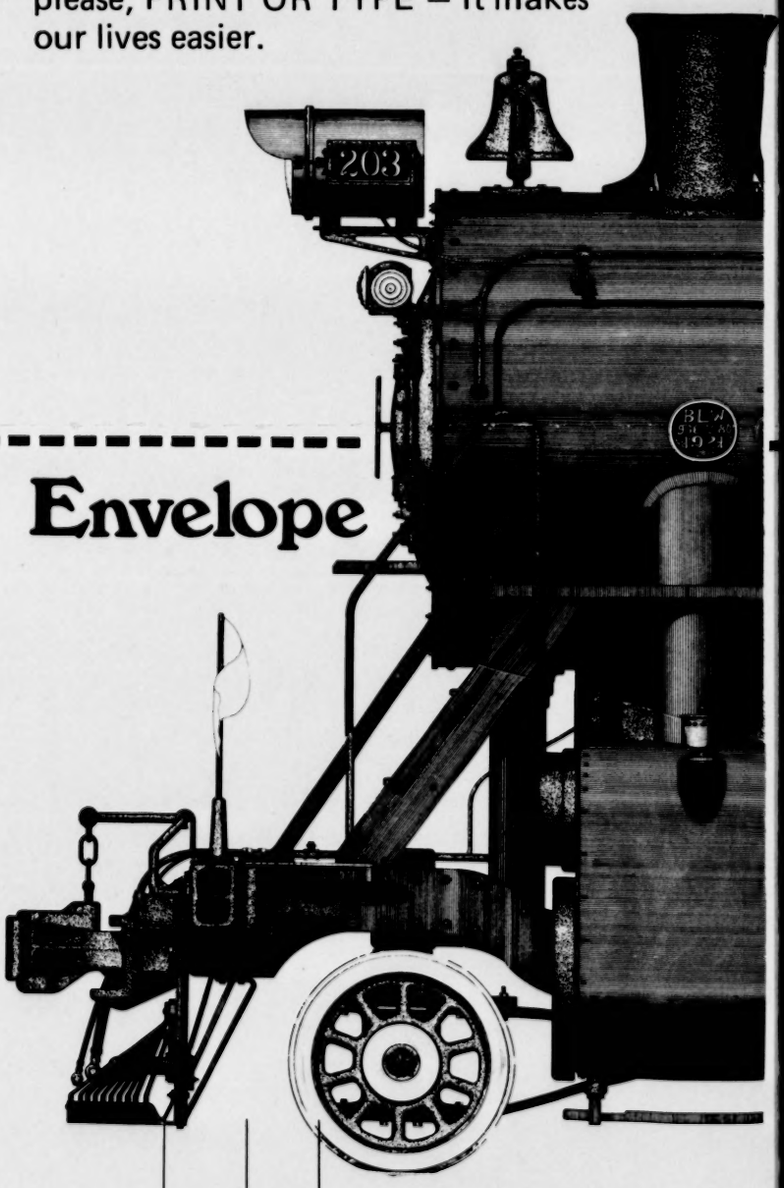

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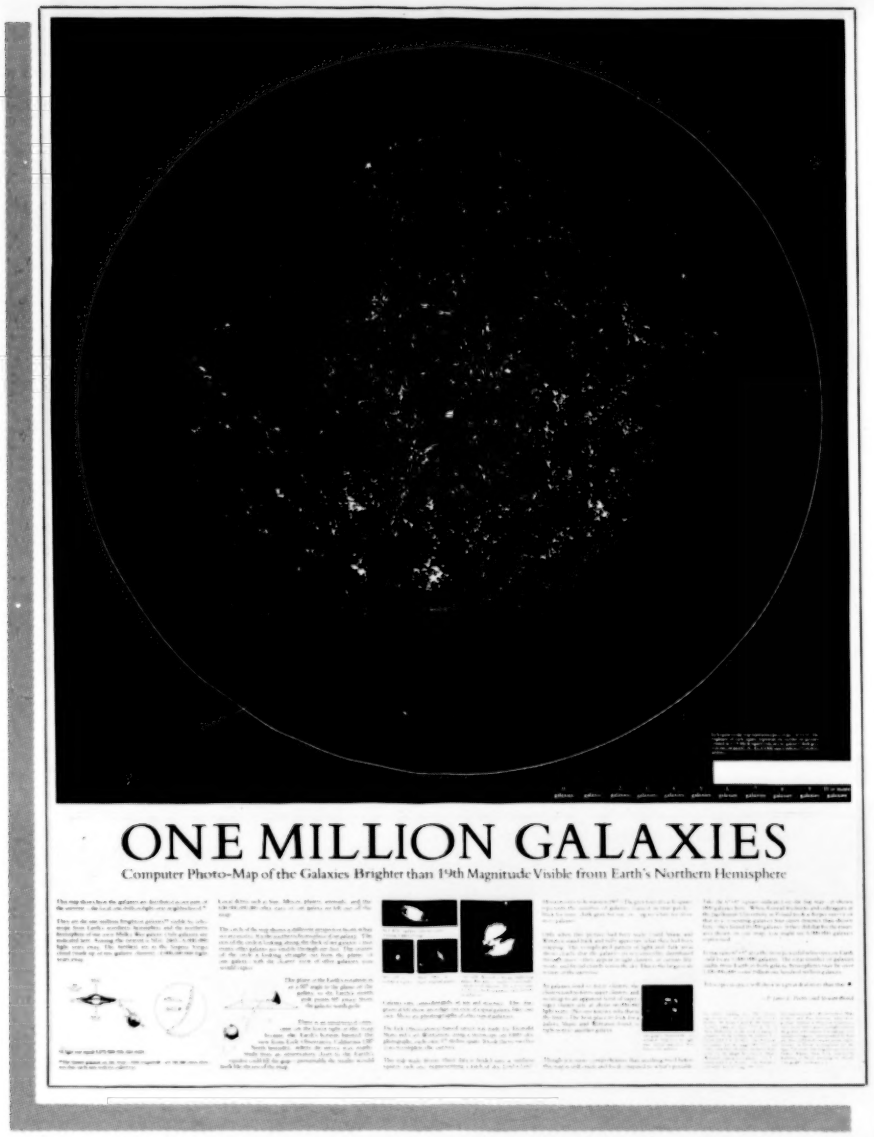

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—Philip Morrison
Scientific American

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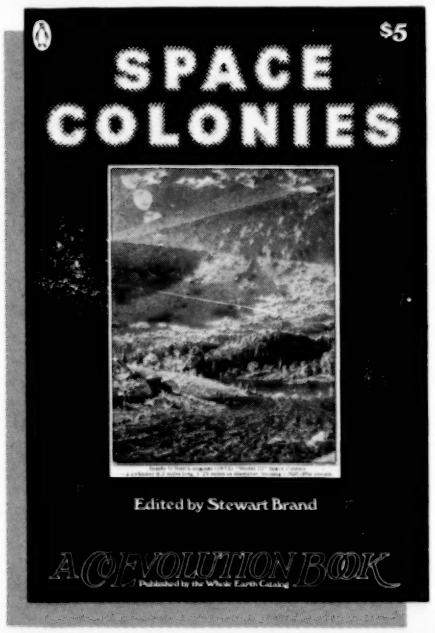
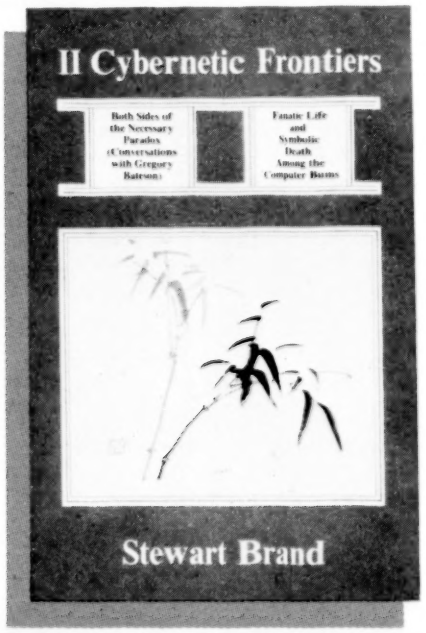
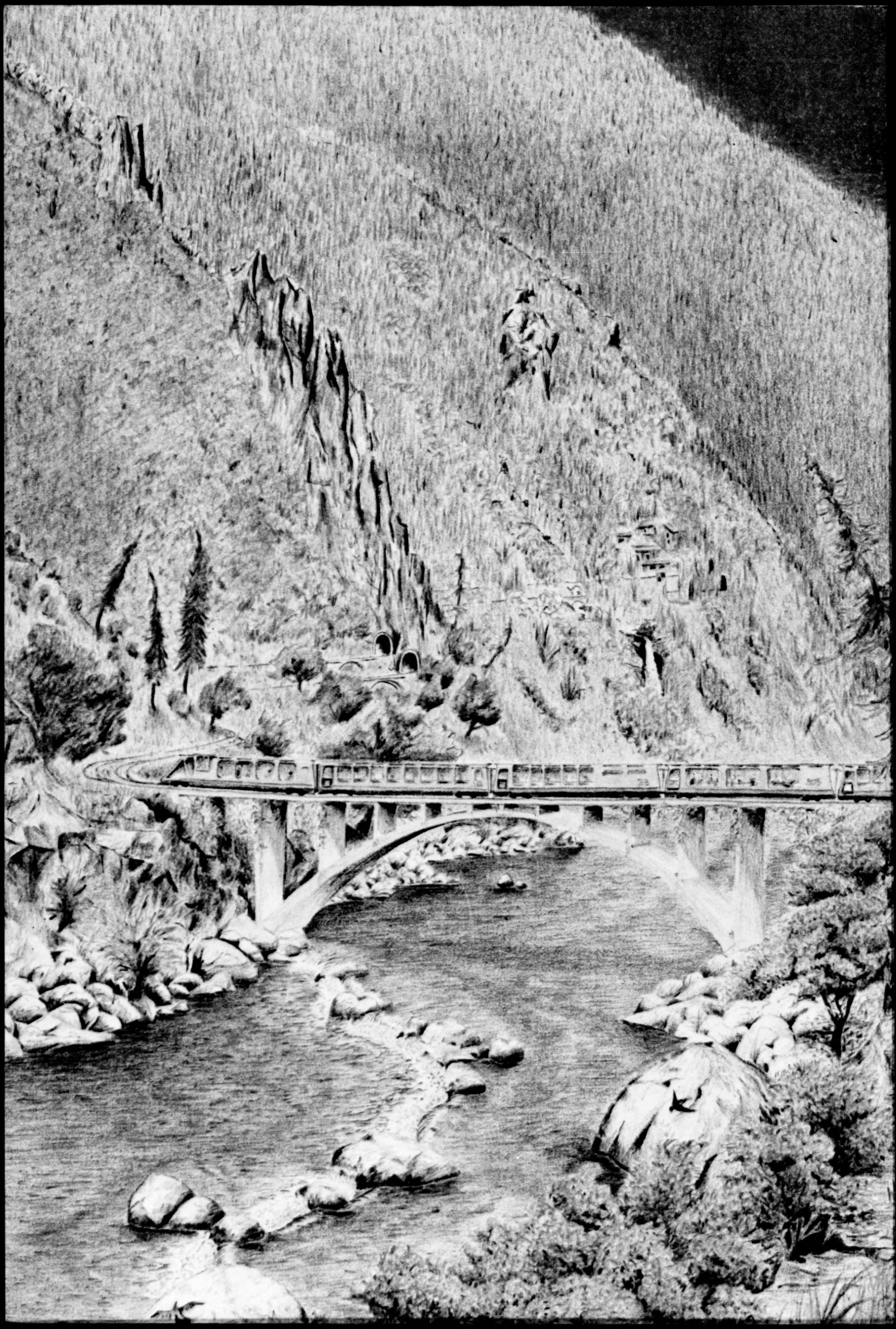


G Space Colonies $4.50

The space colony dream and current space efforts reported and evaluated from within by physicist Gerard O'Neill, astronaut Rusty Schweickart, Carl Sagan, Governor Jerry Brown, along with Jacques Cousteau, E.F. Schumacher, Ken Kesey, Gary Snyder, David Brower, Paul Ehrlich, Paolo Soleri, William Irwin Thompson, Richard Brautigan, John Holt, John Todd, and R. Buckminster Fuller. 160 pages, indexed.



H Two Cybernetic Frontiers $2

During the 2-year hiatus between the **Whole Earth Catalog** and **Whole Earth Epilog** I did nothing but two pieces of reporting. Those two stories informed everything that's happened since. They are: "Both Sides of the Necessary Paradox (Conversations with Gregory Bateson)" and "Fanatic Life and Symbolic Death Among the Computer Bums." 96 pages. —SB